Environmental Impact Review Board

PUBLIC REVIEW
OF THE
GULF CANADA RESOURCES LIMITED
KULLUK DRILLING PROGRAM
1990 - 1992

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1.0 THE PUBLIC REVIEW

1.1 Establishment of the Environmental Impact Review Board

The Inuvialuit Final Agreement (IFA), dated June 5, 1984, settled the land claim of the Inuvialuit in the Western Arctic Region of Canada. This Agreement was "approved, given effect and declared valid" by section 3(1) of the Western Arctic (Inuvialuit) Claims Settlement Act, being Chapter 24, 32-33, Elizabeth II of the Statutes of Canada.

The Act further provided in section 3(2) that the beneficiaries under the Agreement "shall have the rights, privileges and benefits set out in the Agreement", and in section 4 that the provisions of the Act and of the Agreement will prevail over any other law applying to the Territory in the event of inconsistency or conflict.

Being a land claims settlement within the meaning of section 35 of the Constitution Act, 1982, the Agreement is thereby affirmed as an existing aboriginal right. In consequence of these statutory provisions, the terms of the Agreement are given a preferred status over all other federal and territorial laws within the defined Inuvialuit Settlement Region in the Western Arctic.

This Agreement is the basis of the Board's mandate to review the **Gulf Canada Resources Limited Kulluk Drilling Program 1990-1992** (Gulf's Drilling Program).

1.2 Mandate of the Board

Under the IFA, Gulf's Drilling Program is a "development" within the meaning of section 2 and, as such, was subject to screening by the Environmental Impact Screening

Committee (EISC), pursuant to the provisions of sections 11 and 13 of the Agreement. Section 11(16) authorizes the EISC to refer the development to the Environmental Impact Review Board (the Board) for a public review and environmental impact assessment if the EISC determines that the development could have significant negative environmental impact, or negative impact on present or future wildlife harvesting [section 13(8)].

By a letter dated March 4, 1990, from Gary Wagner, Secretary to the EISC, to James I. Livingstone, Chairman of the Board, the EISC referred Gulf's Drilling Program to the Board for further environmental impact review and assessment (the Public Review). The reasons of the EISC for making the referral were concerns regarding the thoroughness of contingency planning and countermeasures in the event of an oil spill. As well, details of the plans for the second and third years of the proposed program were insufficient.

1.3 Procedures of the Board

Pursuant to the powers given to it by section 11(23) of the IFA to establish and adopt by-laws and rules for its internal management and procedures, the Board has enacted By-Law No. 1 and published its Operating Procedures. These documents, together with the IFA, contain the rules and guidelines that constitute the procedures of the Board. These Operating Procedures call for the appointment by the Chairman of Review Panels to conduct Public Reviews.

These Review Panels are to include the Chairman, two Inuvialuit Game Council appointees to the Board, one Member nominated by Canada, and one Member nominated by either the Government of the Northwest Territories or the Government of Yukon.

1.4 Appointment of the Review Panel

By means of letters dated March 14, 1990, the Chairman appointed the following Board Members to comprise the Review Panel for the Public Review of Gulf's Drilling Program:

James I. Livingstone	Chairman
Albert Elias	Inuvialuit Game Council
Mike Stutter	Government of Yukon
Ewan Cotterill	Government of Canada
Calvin Pokiak	Inuvialuit Game Council

The Review Panel conducts the Public Review on behalf of the Board.

1.5 Initiating the Public Review

In accordance with clause 6(b) of the Operating Procedures, the Board caused a Public Notice dated April 10, 1990 to be published in regional newspapers and broadcast through local radio stations announcing that public meetings would commence in Inuvik on June 4, 1990. A copy of this Public Notice is attached as Appendix A to this Decision.

1.6 Public Meeting

Public meetings were held in Family Hall in Inuvik from June 4 to 9 and also on June 18, 1990. Those organizations and individuals who presented written submissions, and those who appeared at the meetings to present oral submissions, are listed in Appendix B.

Under the Board's Operating Procedures, the purpose of the public meeting is to determine whether the Board can make a decision to recommend approving or rejecting the development

without holding a more formal public hearing. The public meeting procedures are designed to be informal, but sufficiently rigorous, to enable the Board to make a fully-informed decision in the event that it should decide that a full public hearing is not necessary.

In this case, detailed information concerning the development was obtained from Gulf Canada Resources Limited (Gulf) in the form of the document entitled **Gulf Kulluk Drilling Program 1990-1992: Submission to the Environmental Impact Review Board**. This document, together with a volume of appendices, contained the Environmental Impact Statement (EIS) required by the Board. Also provided were supplementary filings and written answers to questions that were addressed in writing to Gulf by the Board and by various submittors.

For the purpose of examining the material submitted by Gulf, the Board engaged three consultants: Dr. Rolph Davis to review environmental issues, Mr. William Scott to examine oil well drilling procedures, and Mr. Laurie Solsberg to comment on containment and cleanup of oil spills.

Legal counsel for the Board are Andrew R. Thompson and H. C. Ritchie Clark of Ferguson Gifford, Vancouver.

The proceedings of these public meetings were recorded and transcribed in order to provide a public record. This public record may be examined during normal business hours at the office of the Joint Secretariat, 107 Mackenzie Road, Inuvik, Northwest Territories.

2.0 PROJECT DESCRIPTION

2.1 Overall Plan

Gulf has submitted an application to the Canada Oil and Gas Lands Administration (COGLA) for a three-year Drilling Program Approval (DPA) in the eastern Beaufort Sea (Figure 1). Present drilling plans call for one well to be drilled in the DPA area during 1990, the first year of the program. The number of wells to be drilled in years two and three of the program have not been determined at this time.

Gulf's submission to the Board describes the basic procedures to be used for all wells drilled between 1990 and 1992 with BeauDril (1987) Limited's mobile offshore drilling unit *Kulluk*. Support for the *Kulluk* floating drilling vessel is provided by a fleet of four Class IV Arctic icebreakers, the *Peter Kamingoak* barge and chartered shallow draft vessel as required. Onshore support facilities are located at Nalluk Base in Tuktoyaktuk, Stokes Point, as well as Hooper, Herschel and Garry Islands.

While a specific well site has not been chosen by Gulf, locations in the South Kogyuk area are being considered for the first well. This area is within approximately 30 km (20 mi) of the Amauligak field and has yielded the best seismic information to date. Gulf anticipates that all prospect wells for the DPA area will be located in 30 m (100 ft) of water and are likely to be drilled to 3,000 to 4,500 m (10,000 to 14,800 ft), taking between 30 to 45 days. A risk threshold depth will likely be reached at 1,500 m to 2,500 m (5,000 to 8,200 ft) after approximately 15 to 25 days. Logging, flow testing, abandonment and anchor recovery are expected to take another 25 days.

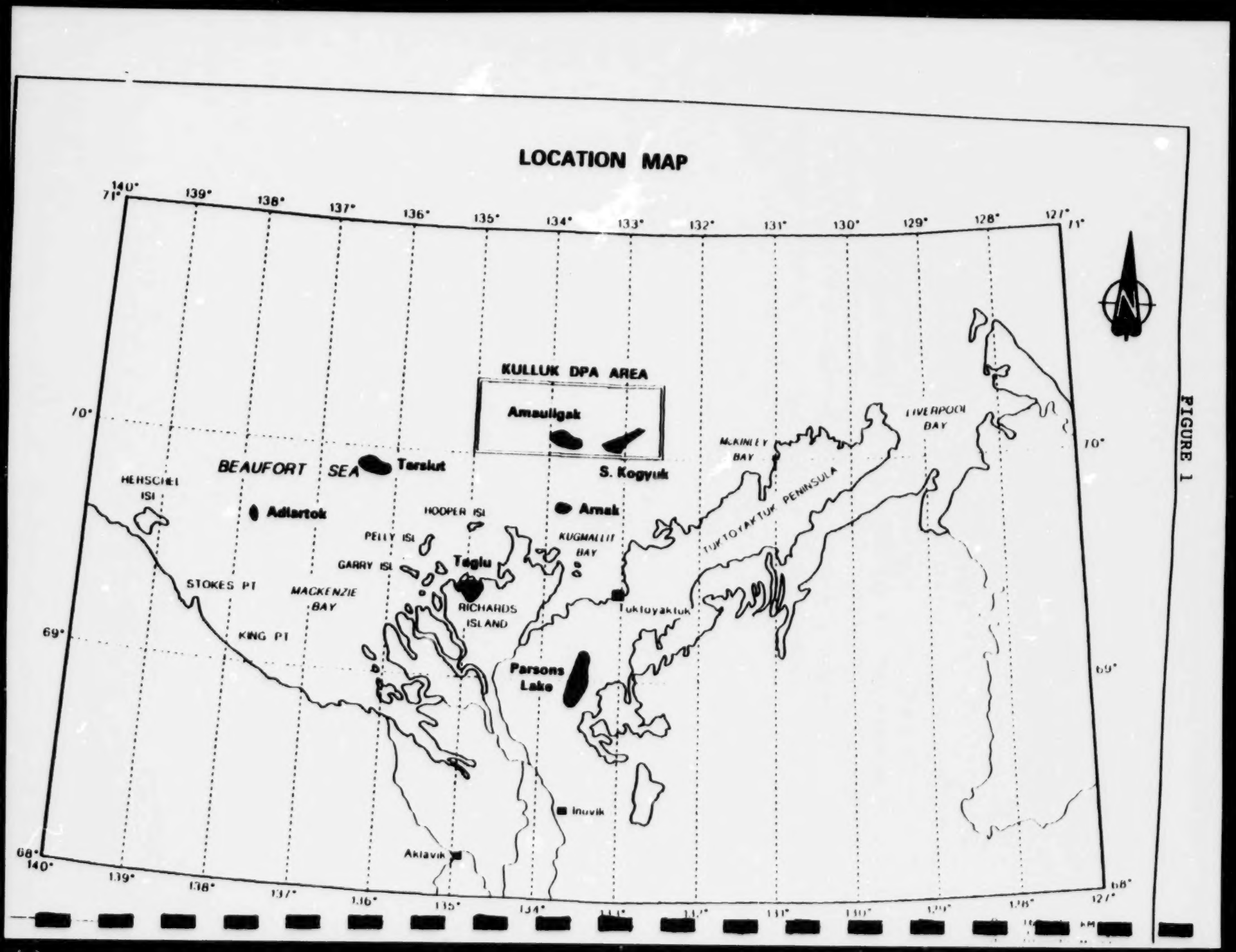
LOCATION MAP
KULLUK DPA AREA
Amauligak
S. Kogyuk
BEAUFORT SEA
Tarsiut
Adlartok
Arnak
Taglu
HERSCHEL ISL
HOOPER ISL
PELLY ISL
GARRY ISL
KUGMALLIT BAY
STOKES PT
MACKENZIE BAY
KING PT
RICHARDS ISLAND
Tuktoyaktuk
Parsons Lake
Inuvik
Aklavik
MCKINLEY BAY
LIVERPOOL BAY
TUKTOYAKTUK PENINSULA
140°
139°
138°
137°
136°
135°
134°
133°
132°
131°
130°
129°
128°
127°
71°
70°
69°
68°
N

FIGURE 1

2.2 Project Rationale

Gulf selected the DPA area because it is believed to contain a number of oil and gas prospects for future development. It also centres on the largest proven reserve discovered in the Beaufort Sea to date; the Amauligak field. In order to fully support development of Amauligak, additional reserves must be established. Exploration efforts are to be concentrated in this area so that new reserves can more easily and efficiently be tied in and produced.

Gulf is presently undertaking further work to define the actual drilling site within the DPA area. This site selection will be governed by the deep geological prognosis of the region. This information is derived from seismic and offset drilling data. In general, the available information for the area allows Gulf to predict potential drilling hazards including formation over-pressure and shallow gas problems.

The timing of the proposed work is outlined in Figure 2. The schedule is basically governed by summer environmental conditions in the Beaufort Sea. The ice strengthened *Kulluk* drilling unit and support vessels are able to access the area in early June.

2.3 Drilling Unit

Kulluk is a cone shaped, ice strengthened floating drilling barge securely moored to the sea-bed by a 12 anchor system. *Kulluk*'s drilling facilities are located around the drilling floor and the 49 m (160 ft) high derrick. The facilities are comprised of a power generation system, drilling fluid (mud) system, drillstem test system, casing and pipe deck, and various liquid and dry bulk storage systems.

SCHEDULE FOR TYPICAL SEASON

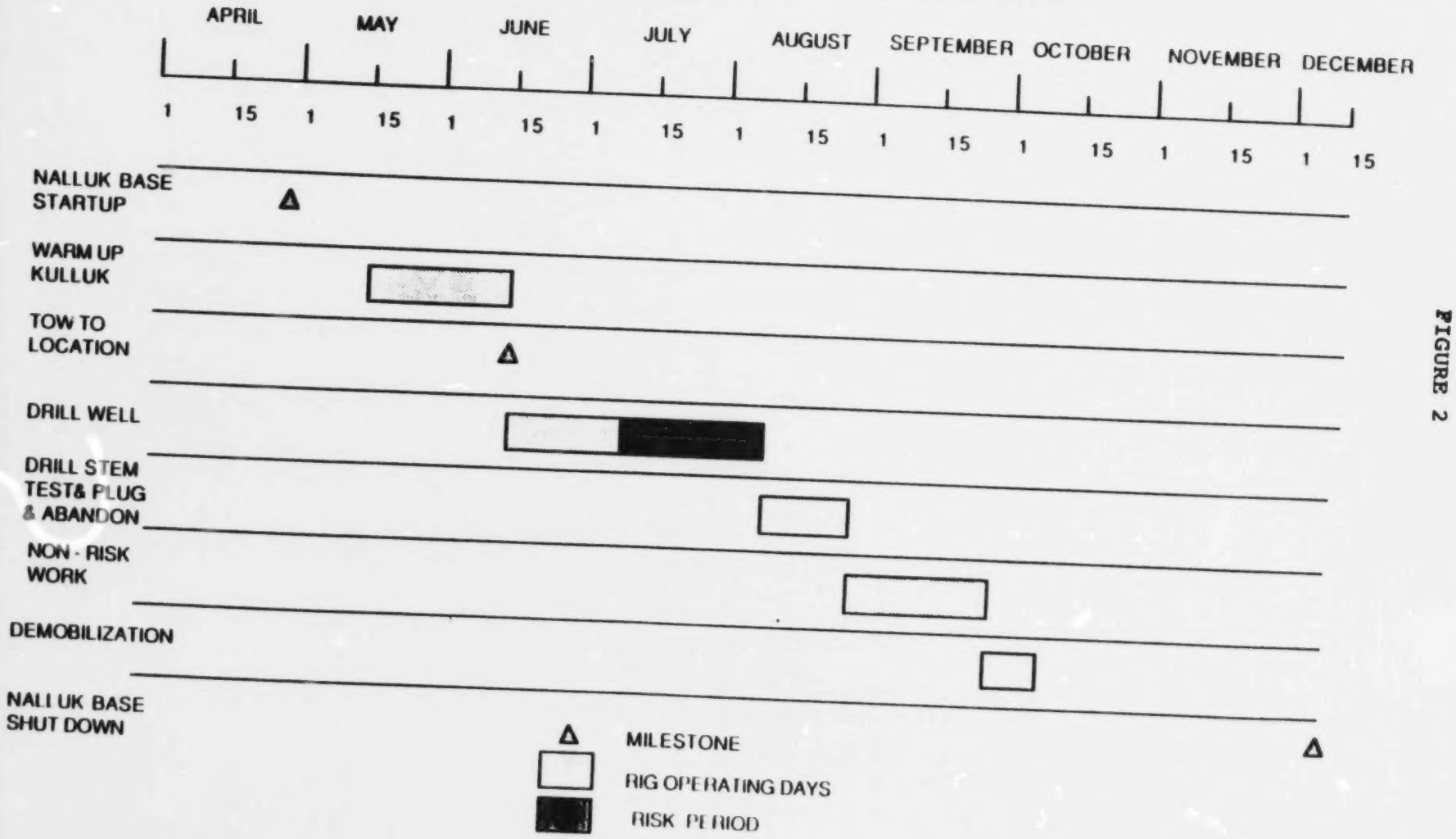

FIGURE 2

The *Kulluk* can accommodate over 100 workers and has cafeteria, hospital, exercise and recreation facilities on board. Sewage and oily water separator systems are installed and remain active at all times when the unit is occupied. Gulf has stated that it accepts responsibility for all wastes produced by its operations and uses procedures for handling and disposing of wastes which minimize their environmental effect. Gulf has also developed a Waste Management System for Beaufort Sea drilling and support activities which allows the movement and status of all wastes to be tracked.

Kulluk is the key component in a second generation floating drilling system which includes four powerful ice breaking support ships. The system was built to ice Class IV specifications which enable it to operate in the Canadian Beaufort Sea environment under conditions that could otherwise have a negative impact on safe task completion.

Besides the ice resistance features, *Kulluk* is equipped with state-of-the-art drilling equipment. This equipment is designed to drill and test wells up to 6,000 m (20,000 ft) deep in water depths up to 180 m (600 ft). Research, design and modification to the equipment is carried out on an ongoing basis to improve the safety and efficiency of this system. Research with respect to the design and modification of the equipment is carried out on an ongoing basis to improve the safety and efficiency of this system.

3.0 APPLICATION TO BOARD

The application before the Board is for approval of Gulf's Kulluk Drilling Program 1990-1992. This application is the second that has been referred to the Board for public review since the establishment of the Board in 1985. The first application dealt with a referral of the Esso Chevron et al. Isserk I-15 Drilling Program (Isserk I-15) proposed for the Beaufort Sea in August, 1989. Like Isserk I-15, Gulf's application also deals with exploration drilling for oil in the Beaufort Sea. Unlike Isserk I-15, which concerned the drilling during the winter of 1989/90 of a specific exploration well, the Gulf submission describes a three-year program to drill a series of wells.

The Gulf application presents the Board with very different considerations than were involved in the Isserk I-15 case. In the latter, the drilling was to take place within the land-fast ice zone off the Tuktoyaktuk Peninsula. Once the Board was satisfied that, should a blowout occur, relief well drilling containment and cleanup of the spilled oil could be accomplished with the ice as a firm platform for these counter measures, it could conclude that the potential impacts on wildlife harvesting were manageable and that costs were within the financial capability of the Proponent. Therefore, following the Public Review of Isserk I-15, the Board decided to recommend approval of the drilling program subject to terms and conditions, and without holding a full public hearing.

However, in the case of the Gulf Drilling Program, not only are the potential volumes of spilled oil much greater than in the Isserk I-15 case, but also the prospective drilling locations are in the transition zone between the permanent pack ice and the land fast ice. In this transition zone, the potential for uncontrolled escape of oil into the marine and onshore environments has to be taken into consideration. In

consequence, this Gulf application presents the Board with issues not previously considered by it - namely, the acceptability of blowout risks in cases where large quantities of spilled oil may enter open water and eventually reach shorelines.

4.0 JURISDICTION OF BOARD

4.1 Decision-Making Powers of Board

In reaching its decision on any proposal properly brought before it, the matters which the Board must decide are set out in the IFA. Section 13(11) says:

> Where pursuant to sub-section 10 a proposal is referred to the Review Board, it shall, on the basis of the evidence and information before it, recommend to the government authority empowered to approve the proposed development:
>
> (a) terms and conditions relating to the mitigative and remedial measures that it considers necessary to minimize any negative impact on wildlife harvesting and,
>
> (b) an estimate of the potential liability of the developer, determined on a worst case scenario, taking into consideration the balance between economic factors, including the ability of the developer to pay, and environmental factors.

Liability is defined in section 13(15) in part which reads:

> Where it is established that actual wildlife harvest loss or future harvest loss was caused by development, the liability of the developer shall be absolute, and he shall be liable without proof of fault or negligence for compensation to the Inuvialuit and for the cost of mitigative and remedial measures.

Actual wildlife harvest loss is defined as:

> provable loss or diminution of wildlife harvesting or damage to property used in harvesting wildlife.

and future harvest loss is defined as:

> provable damage to habitat or disruption of harvestable wildlife having a foreseeable negative impact on future wildlife harvesting.

At the conclusion of any Public Review, the alternative decisions which are open to the Board are prescribed by yet another section of the IFA, section 11(24), which reads:

> The Review Board shall expeditiously review all projects referred to it and on the basis of the evidence and information before it shall recommend whether or not the development should proceed and, if it should, on what terms and conditions, including mitigative and remedial measures. The Review Board may also recommend that the development should be subject to further assessment and review and, if so, the data or information required.

A note of explanation must be given about the Board's decision-making powers. While the Board does make decisions, it does not, however, have the final say about whether a particular development should proceed - that decision always rests with the appropriate governmental authority. In certain cases, more than one such authority may be involved.

The IFA stipulates that if the competent government authority is unwilling or unable to accept the recommendations of the Board, or wishes to modify any of them, reasons must be made public in writing within 30 days of the Decision [section 11(29)].

The IFA also provides that no licence or approval shall be issued by the competent government authority permitting any proposed development to proceed unless the provisions of the Environmental Impact Screening and Review Process under the IFA have been complied with [section 11(31)].

That is not to say that the Board should be legalistic and rigid in its approach and in its practices and procedures. Far from it. Administrative tribunals in general are expected

to draw on the experience and expertise of their members and to receive evidence and information in a fashion that is not restricted by a rigid application of the rules of evidence. That is probably particularly true of this Board given the unique circumstances of its mandate, its purpose, and the complex and yet developing issues it is called upon to consider.

4.2 Onus of Proof

At the Public Review an issue arose as to the question of onus. The Board expressed the view that the onus rested on Gulf, as the Proponent of the development, to provide at least some evidence and information dealing with the various aspects of the Public Review. In particular, the Board adjourned the proceedings for one week to enable Gulf to provide evidence or information concerning the costs of shoreline impacts of the development. Gulf disagreed and argued that no obligation rested on it to provide evidence or information.

Again, this is not an issue where the Board would wish to apply a legalistic approach. Suffice it to say that any applicant like Gulf who fails to bring before the Board sufficient "evidence and information" to permit the Board to carry out the Public Review runs the risk that, at the end of the day, the Board will have insufficient evidence and information on which to recommend that the particular development should proceed.

4.3 The Board's Interpretation of Its Mandate

Section 4.1 of this decision described the decision making powers of the Board. They require that the Board approve or reject the development and, if approval is given, prescribe terms and conditions on which it may proceed.

In particular, section 13(11)(a) requires the Board to specify terms and conditions that it considers necessary to minimize any negative impacts on wildlife harvesting and section 13(11)(b) requires it to provide an estimate of the potential liability of the developer.

These requirements are intended to fulfill the objectives set forth in section 13(1), namely:

(a) to prevent damage to wildlife and its habitat and to avoid disruption of Inuvialuit harvesting activities by reason of development; and

(b) If damage occurs, to restore wildlife and its habitat as far as it is practicable to its original state and to compensate Inuvialuit hunters, trappers and fishermen for the loss of their subsistence or commercial harvesting opportunities.

The Board notes the order in which these objectives are stated. Clearly the intention is that priority be given to preventing damage and avoiding disruption of harvesting. Only if mitigative and remedial measures fail to prevent damage and disruption is paragraph (b) intended to apply to provide compensation. This sequence of avoidance, mitigation, restoration and, as a last resort, compensation, is consistent with resource management principles as reflected in documents like the Fisheries Habitat Policy published by the Department of Fisheries and Oceans.

It makes common sense that the first goal of the Inuvialuit and of all Canadians must be to prevent, or at least mitigate, damage to and disruption of wildlife and its habitat.

This Board interprets its mandate to mean that its first responsibility is to assess whether or not the impacts of a development on wildlife and its habitat are within acceptable limits of risk. If the Board concludes that such risks are not acceptable, it must reject the application. If it considers that the risks are acceptable, the Board must specify terms and conditions that, so far as practicable, will mitigate and remedy the damage and disruption. Finally, as a last resort, compensation may be payable for cleanup and restoration costs and for loss of wildlife harvesting by reason of the legal liability provisions of section 13(15) of the IFA. In this event, the Board is required to estimate the potential liability of the developer.

4.4 Assessment of Risk

In deciding whether or not the risks of a blowout are acceptable, some standard or test must be applied by the Board as a result of which the Board approves or rejects the development. With respect to the estimation of potential liability under section 13(11)(b), the IFA sets forth a test by which liability is to be measured. This test is a "worst case scenario". Its definition is discussed in 6.1, post. However, as to the more fundamental question of approval or rejection of the development proposal, the IFA is silent as to what test should be applied.

In the Board's view, this difference in wording must be respected. Instead of a worst case scenario, some other test must be established by which to judge whether or not negative impacts can be minimized to acceptable levels by mitigative and remedial measures. This test could be a "more probable" scenario. It would require the Board to start with the worst case scenario and then to apply probability analysis

along with its assessment of the effectiveness of mitigative and remedial measures. The result would be a test less stringent than the worst case scenario.

The explanation for the two standards would be that development risks should be acceptable where the more probable scenario establishes that negative impacts can be minimized to acceptable levels. Just to be sure, should the worst case scenario occur, there would be in place a guarantee of financial responsibility to ensure that everything possible would be done to mitigate losses to, and to restore, wildlife and wildlife habitat.

5.0 BOARD'S DECISION

5.1 Summary of Board's Decision

The decision of the Board is that it has no responsible option but to recommend strongly against approval of the Gulf Drilling Program.

In the course of its deliberations, the Board has striven to find terms and conditions it could recommend and upon which the Board would feel safe and confident in recommending that the development or even a portion of it proceed. It has been unable to do so. There are two principal reasons for the Board's final decision.

Firstly, it is the conclusion of the Board, based on all the evidence and information it has heard and received, that there is a startling lack of preparedness evident on the part of government and on the part of Gulf to deal effectively with a major oil well blowout in the Beaufort Sea during the open water season.

Secondly, nothing that the Board has heard enables it to make any sensible recommendation dealing substantively with Gulf's potential liability in the event of a worst case blowout, one of the obligations mandatorily imposed on the Board by the IFA.

That such a situation exists after years of drilling in the Beaufort Sea is a sad reflection of a complacency which seems to have developed on the part of Gulf and the government authorities, driven by an ultimate belief that a blowout is so unlikely to occur that preparing to meet it is largely an academic exercise. That complacency has led to a failure to amass information, a failure to develop essential planning, and

a failure to test, in realistic conditions, equipment and responses. All of these would be necessary and vital, if a major blowout did occur, in order to lessen the environmental impacts.

Floating drilling units were first introduced into the Beaufort Sea in 1976 when Dome Petroleum Limited started to use drillships for the drilling of offshore exploration wells. The *Kulluk*, the second generation of drilling vessels for ice infested waters, was brought into the Beaufort Sea in 1983. Between thirty and forty offshore exploration wells have been drilled to date in the Beaufort Sea using drillships or the *Kulluk*.

In the offshore oil drilling industry, blowouts do occur. Significant oil blowouts have occurred in the North Sea, off the coast of California and in the Gulf of Mexico, the latter resulting in the largest oil spill ever recorded. One gas and one gas plus condensate blowout have occurred off the east coast of Canada near Sable Island.

Although no oil blowouts have occurred to date in the Beaufort Sea, there have been three incidents of shallow gas or fluids blowouts. Two of these involved drillships and the latest of these, at the Immiugak N-05 well in June, 1989, involved the *Kulluk*.

The Board recognizes the fact that there are significant differences as to the causes and effects of shallow gas versus oil blowouts. However, the Board notes that the June, 1989 incident did happen even though, in the words of Mr. Mitton, Manager of Northern Operations for Gulf:

> We believe that the *Kulluk* is the best Arctic drilling unit available and the people involved in running it are the most capable in the world. (Transcript, Vol. 1, p.19)

New technologies in drilling, such as top drive, which reduces the number of days to drill a relief well, kick tolerance techniques, which have been implemented by industry and accepted by COGLA, and new down hole equipment such as MWD (measurement while drilling) have all helped increase the ability of Beaufort Sea operators to deal with and reduce the chances of a blowout. Nevertheless, at the present time exploratory drilling from a floating vessel presents the greatest risk of environmental damage from drilling operations in the Beaufort Sea.

What is particularly difficult for the Board to accept is the fact that Gulf has operated in the Beaufort Sea since 1983 with its $600 million Beaufort Sea Drilling System and has not yet put a shoreline cleanup manual in place. Even more astounding is the fact that COGLA has not requested that this be done.

While activity levels for drilling in the Beaufort Sea are at a low level, the Board believes that government and industry should use this time to review what has happened since 1976 and to determine and put in place improvements in the areas noted in this decision under the heading "Areas of Concern".

Although impressive in some respects, the proposal before the Board is sadly deficient in a number of important areas. The existence of those deficiencies, combined with other areas of concern, leads the Board to decide that the Gulf Drilling Program should be rejected.

5.2 Rationale for Decision

The inevitable and more narrow result of the deficiencies in Gulf's proposal was the inability of Gulf to provide any estimate or idea of the range of their potential

liability for wildlife impact and onshore cleanup in the event of a worst case scenario blowout. The Board is directed by section 13(11)(b) to provide its estimate of that liability to the responsible government authority.

The importance of the Board being able to do this emerged from the evidence of Mr. Gibson, on behalf of DIAND. As will be discussed in more detail later, the government's view of section 13(18)(c) of the IFA is that this section permits the Minister, at the time of approving the application, to set an upper dollar limit on the absolute liability imposed by the IFA. In their further opinion, that upper limit in turn limits the government's obligation to backstop. The current upper limit has been arbitrarily set at $40 million, without any apparent rational basis for doing so. Indeed, all available evidence, including the *Exxon Valdez* experience, suggests that such a limit is woefully inadequate.

Mr. Gibson's evidence was to the effect that the Minister would look to the liability estimate provided by the Board in setting any new upper limit. When pressed as to how that limit would be set if the Board felt itself unable to provide an estimate, his response was that he hoped the Board would be able to do so.

Accordingly, the professed inability of Gulf to provide evidence upon which to base such an estimate means that, at the end of the day, the implementation of the liability and backstop provisions of the IFA, which are fundamentally important to the people of the region, are clouded with doubt and uncertainty. That is particularly so when Gulf admits that it might be unable, itself, to finance cleanup and compensation for a worst case blowout.

In that event, if absolute liability were to be capped at $40 million, as has historically been the case, the government's backstop, designed for circumstances when the developer is unwilling or unable to pay, would prove to be wholly illusory. The Inuvialuit may well be forced to rely on the voluntary efforts of government to clean up, and would be denied the benefit of the arbitration and other provisions of the IFA which are designed to give them a say in, and a mechanism for, determining the extent of cleanup and compensation measures.

The Public Review was adjourned on June 9 due to Gulf's refusal to provide further information to the Board concerning on-shore cleanup and liability. When the Public Review resumed on June 18, Gulf attempted to excuse its failure to provide that information by listing off a series of 10 variables about which assumptions would have to be made before such an estimate could be provided. Oddly enough, in other aspects of its proposal, Gulf seemed quite prepared and able to make and apply appropriate assumptions about 7 of those 10 variables. However, of that list, Gulf refused to make assumptions about the other three variables:

(a) Area of Impact

(b) Shoreline Response, and

(c) Standards for Cleanup

The inability to provide a liability estimate is, therefore, in a broader sense, the result of Gulf's failure or inability to gather relevant information and its refusal to make appropriate assumptions in those three categories of variables listed above. The beginning of that inevitable chain was Gulf's insistence on the "zone of influence" concept as its impact assessment methodology, one that so many intervenors found unsatisfactory.

The Board has been advised by its consultants that the methodology exists to do trajectory analysis. That advice is confirmed by an oil spill preparedness study prepared by the Independent Petroleum Association of Canada (IPAC) and the Canadian Petroleum Association (CPA) in November, 1989. Indeed, the consultants who gave evidence for Gulf on the "zone of influence" concept apparently are leaders in developing trajectory analysis methodology. Why it was not used for this Public Review is known only to them and to Gulf.

However, had a trajectory analysis been done, even based on South Kogyuk as was so much of Gulf's evidence, areas of impact would have been approximated. Sensitive areas could have been identified and onshore cleanup efforts planned for and costed. Ultimately, an estimate of liability could have been given. Even if imprecise, such an estimate would have enabled the Board to operate as required by the IFA and make its recommendations.

Based on Gulf's "zone of influence" concept, it is clear that there is a high probability of some significant coastline oiling in the event of a major blowout. Despite that fact, Gulf still failed to provide information of an acceptable level to permit the Board to properly assess the impact of that oiling and the appropriate responses to it.

The failure to provide an estimate of liability is therefore important in itself but, more significantly, it is in fact driven by Gulf's refusal or professed inability to project the actual on-shore impacts anticipated from a major blowout.

The fault, however, does not lie totally with Gulf. Government must shoulder a large degree of responsibility for the present state of affairs. Dr. Gill of COGLA had this to say about cleanup costs in the Beaufort Sea:

> Some five years ago we conducted a study of what it might cost to cleanup an oil spill in the Beaufort Sea.... At that time, five years ago, the thrust of the cleanup was based on aerial application of oil spill dispersants. And so the costing reflects that approach and comes at about $100 million. Now that's just the cost of the cleanup. We're probably inclined to think that at the time that that was...a good figure. Today it's probably out of date. (Transcript, Vol. 2, p.252).

A concensus now exists that the use of dispersants in the Beaufort Sea would not be a very effective way of cleaning up an oil spill, so not only is the dollar figure out of date, but so is the method of cleanup being planned for.

It is incomprehensible that DIAND has, in the past, limited a developer's absolute liability to $40 million. That number is so low that insurance of up to 10 to 15 times that amount is carried by Gulf, routinely and voluntarily.

It is even more incomprehensible that drilling in the Beaufort Sea - Mackenzie Delta area has been taking place for 25 years, but that, according to Gulf, there does not exist a reliable body of information to enable it to provide the Board with any estimates, assumptions, models, or data on the crucial areas of shoreline impacts, shoreline response, and cleanup standards. Certainly such information did exist at the time of the 1980 Beaufort Environmental Assessment Review Panel and recommendations were made, at that time, with respect to accumulating updated information on an ongoing basis.

If, on the other hand, Gulf is correct, and reliable information is simply not available, then there has clearly been a failure on the part of government and of industry to adequately address issues of environmental safety and preservation in connection with drilling in the Beaufort Sea.

All parties who participated in this Public Review were unanimous in recommending that various workshops and task forces be set up to address the problems outlined above and to move towards their solution. Some, particularly COGLA personnel, spoke quite eloquently of the need for leadership and a sense of commitment with regard to this process on the part of all concerned. The Board agrees.

6.0 AREAS OF CONCERN

6.1 Worst Case vs. More Probable Case

Much of the discussion at the Public Review revolved around Gulf's stated worst case scenario. Gulf claimed that the blowout would commence, and continue unabated, at a rate of 40,000 barrels of oil per day (bopd) for the period of time required to kill or control the blowout.

Dependent on the state of readiness of the relief well drilling vessel, the blowout is expected to continue for either 45 or 66 days. The combination of these assumptions would lead to spilled oil volumes of between 1.8 to 2.64 million barrels (75 to 110 million gallons).

In the opinion of the Board's consultant, Mr. William A. Scott, dependent on the relief well system used, the actual spill volume, on a worst case basis, would be between 1.16 and 1.45 million barrels (48 to 60 million gallons) or 36 to 45% less that stated by Gulf.

There was considerable discussion during the Public Meeting of the evidence of Gulf's expert, Mr. Sparlin, concerning the likelihood of the blowout slowing or stopping due to "natural" processes. It is Mr. Sparlin's opinion that, due to the soft and unconsolidated nature of the Pullen Delta sands, it is likely that the flow from a blowout would eventually be restricted by sand suspended in the fluids clogging up the borehole and "bridging off" the producing formations. Should this occur, a blowout could control itself within hours or days. While this eventuality should not, of course, be a factor in the worst case scenario because it is not a certainty, it should be taken into account when looking at a more probable blowout scenario.

It is Gulf's position that the worst case flow rate is a purely hypothetical number and that, for the purposes of assessing the risk of the project, one should consider a more probable case.

Gulf's "realistic case" was put forward as a blowout of 2,000 bopd lasting for 5 days, resulting in a total flow of 10,000 barrels (420,000 gallons).

This projection of 2,000 bopd for 5 days was based on an analysis of 98 blowouts in the Gulf of Mexico from 1955 to 1980. In attempting to compare this data to the situation in the Beaufort Sea, there are two key points to be reviewed:

(a) the blowout rate

(b) factors affecting the number of days the event will last.

Firstly the blowout rate of 2,000 bopd is based on the deliverability of Gulf of Mexico wells which cannot be compared to the deliverability potential of the Pullen Delta wells found in the Beaufort Sea. It was stated that the Pullen Delta wells have the potential to deliver flow rates of 40,000 bopd, however the Board has been asked to accept that, in the more probable case, the wells will only flow at 5% (or 1/20th) of their potential. Since Gulf has stated that its intention is to find additional new oil fields in the Amauligak area, basing all of the plans on rates of only 2,000 bopd, even for its more probable case, is not credible.

Secondly, with regard to the factors affecting the number of days the event will last, the following observations were made by the Board's consultant:

(a) since the Gulf of Mexico is geologically a deltaic area like the Beaufort Sea, and there are known sand control problems when wells are drilled there, it is reasonable to assume that any analysis of 98 blowouts in that area will reflect the impact of "sanding off" or "bridging" in the number of days the well will remain out of control. The evidence provided by Mr. Sparlin on this topic was well received, but the Board had difficulty accepting whether this would actually apply to the Beaufort Sea case. The use of actual data from the Gulf of Mexico would suggest that the more probable blowout would last at least 5 days.

(b) the use of data on Gulf of Mexico wells in this analysis means that the majority of wells studied would have the well heads surface mounted. This means that surface kill techniques would be used in the event of a blowout, and this undoubtedly helps to keep the number of blowout days as low as they are. In the case of Beaufort Sea wells drilled from a floating platform, surface well control techniques are not applicable. It is reasonable to assume that the average number of days the blowout might continue in a subsea Beaufort Sea case would be longer than for an average Gulf of Mexico well blowout. A conservative assumption would be that the more probable blowout duration would be between 7 and 10 days.

In arriving at the volume spilled in the more probable case, Mr. Scott applied the declining production rate developed in section 2.4 of his report. The net result was that, for the more probable case, the spilled volume would be in the range of 294,000 to 384,000 barrels (12 to 16 million gallons).

The main emphasis of this analysis is that, in either the worst case or the more probable case, the volume spilled will be substantial; up to a volume 4 to 6 times that spilled from the *Exxon Valdez*. The Board concludes that Gulf's claim that the more probable case be represented by a total spilled volume of 10,000 barrels (420,000 gallons) is not acceptable.

6.2 Operating Season

The current regulations allow for risk drilling up to September 25. After that date, COGLA can grant two ten day extensions which would advance the deadline to October 15. The September 25 date was originally set on the basis of a projected end of season for a Canmar drillship and support fleet, minus the number of days required to drill the required relief well.

In the case of relief well planning, it is a generally accepted principle that another rig should be kept available to drill the relief well. This being the case, a Canmar drillship will be the relief well vessel designed to support the *Kulluk*.

In setting the safe end to the risk operating season, Gulf carried out a detailed analysis in order to establish the following two factors:

(a) the last date that one can remain efficiently operational with a Canmar drillship plus its support fleet.

(b) the range of days required to drill and complete the relief well.

Gulf stated that, on the basis of their analysis, the last effective date for the operation of a Canmar drillship was November 10. This analysis was supported by the Board's consultant, Mr. Scott.

Gulf stated that the range anticipated for drilling the relief well varied from 45 to 66 days dependent on the state of readiness of the Canmar drillship. Mr. Scott revised these numbers to between 56 and 73 days. Gulf offered no fundamental objection to this revision.

If one assumes 60 days as a reasonable median value for the number of days required for the relief well, then the last date allowed for risk drilling should not extend past September 10. The conclusion must be, therefore, that any approval of extensions past September 25 is clearly not valid if the Canmar drillship is the designated relief well vessel. Also, it would appear that the last risk drilling date should be closer to September 10, rather than September 25.

In the past, risk drilling has been allowed by the regulator until October 15 for the *Kulluk*, in circumstances where a Canmar drillship would have been unable, under any reasonable analysis of the situation, to complete a relief well.

Successfully drilling a relief well in any blowout scenario is essential in order to reduce the amount of oil released into the environment. Regardless of the well productivity, a well blowout which is not killed in one season could result in a spill of 2 to 3 million barrels (84 to 126 million gallons) as the flow would continue right through the winter.

It is necessary to immediately revise the existing regulations and guidelines to reflect these concerns. It is suggested that an end of season date for the Canmar drillship being the relief well drilling system for the *Kulluk*, be

fixed. Some suggestions have been made to the effect that this date could "float", based on an interpretation of physical environmental conditions at the time. This approach is not recommended by the Board since it is felt that the prediction of an end of season date some two months before it occurs is not practical or desirable.

However, it is logical that the last risk drilling date be allowed to "float" on a well by well basis. This will recognize the fact that shallow wells, such as the one proposed for South Kogyuk, may require fewer relief well operating drilling days than, say, a deeper Amauligak area well would.

An essential part of this planning process will be the establishment of standard operating parameters for the drilling and killing of a relief well which reflect the operating environment in and around a blowout site. It is optimistic to assume that such a complicated and hazardous operation will proceed as smoothly as the Proponent expects.

In conclusion, failure to address this problem leads to continued exposure to potential worst case spills in the 2 to 3 million barrel range.

6.3 Mitigative and Remedial Measures

A major factor in assessing the potential environmental consequences associated with any form of development is an examination of the extent to which any environmental damage that could result might be mitigated. In terms of offshore oil and gas exploration, environmental concern centres around impacts that could arise from an oil well blowout. Mitigative and remedial measures that must be examined in this context are the offshore containment, collection and disposal of oil from the blowout; the protection

of particularly vulnerable species, the protection of areas of environmental sensitivity, such as shorelines and important wildlife habitat; and the cleanup of areas contaminated by oil from the blowout.

From information considered by the Board a number of significant concerns arose with regard to the safety and effectiveness of the measures proposed by the Proponent, and with the overall level of planning and preparedness of the Proponent. Additional concerns arose regarding the likely effectiveness and state of preparedness of government support for these measures. The practical capacity and level of effort required of the Proponent by government regulatory agencies were also of concern to the Board.

From the information available to the Board, it seems clear that the Proponent is not adequately prepared to quickly respond with the appropriate mitigative and remedial measures required in the event of an offshore oil well blowout. There was no information provided to suggest that vital wildlife resources, habitat and shorelines could be effectively protected and cleaned up, and many indications that they could not.

Of even greater concern, based upon the information available to the Board, is the unavoidable conclusion that an adequate level of preparedness in this regard does not appear to be demanded of the Proponent by governmental regulatory agencies, who are themselves unprepared for an event of this nature.

Based upon the information available to it, the Board had a number of specific concerns:

6.3.1. Contingency Planning

The effectiveness of any contingency plan is greatly influenced by the extent to which it has been tested through communications and operational exercises. These exercises provide insight with regard to the practical effectiveness of systems and equipment, logistical support capabilities and also with regard to the familiarity of key personnel with their roles in the plan. From an analysis of these exercises, plans can be updated and revised to improve their effectiveness.

Although the Proponent stated that weekly training sessions are held with oil spill cleanup personnel and equipment, these exercises do not take place in offshore areas under operational conditions, nor are they held on a surprise basis. Moreover, an extensive communications and decision making exercise, held jointly by government and industry on an annual basis during the early years of Beaufort Sea offshore exploration, is no longer held. There is, therefore, no apparent basis upon which contingency plans can be adequately assessed, and key government and industry personnel made familiar with them.

A further deficiency was noted with regard to the focus and coverage of the contingency planning effort. For the most part, the contingency planning effort has focused on offshore containment, recovery and disposal. No applicable plans were available for shoreline protection or cleanup. Although draft sub-plans were available for polar bears, beluga and birds, these focused primarily upon effects that might be anticipated during routine operations. The Proponent stated that these sub-plans would be updated and completed during the course of the Board's public meetings, but much of the information was not, in fact, provided. In fact, the evolving nature of contingency plans all but precluded an assessment of their potential effectiveness.

6.3.2 Offshore Containment and Disposal

The Proponent estimated that during an early season blowout, from July 4 to July 18, up to 26% of spilled oil could be recovered or burned *in situ*. By late August this percentage drops to 10%, and by the end of September it drops to 3%. In this latter case, it was estimated that up to 77% of the spilled oil would be trapped in newly freezing ice.

The Board was concerned that even these relatively low estimates of containment efficiency might be overly optimistic. The difficulty of co-ordinating, operating and supporting booming, recovery and burning operations in close proximity to the relief well operation does not seem to have been adequately considered, particularly in the situation when the drilling unit and containment activities are both downwind from the blowout source. As well, the lack of operational testing, in realistic field conditions, of containment and recovery equipment raises serious concerns with regard to their capabilities under Beaufort Sea conditions. This is particularly the case during late season when severe weather conditions and the presence of ice would likely be encountered.

A further, and perhaps more serious, concern arose with regard to the general safety of personnel working on both countermeasures and drilling due to exposure to the natural gas plume of the blowout during calm wind conditions.

The Board also has concerns with regard to the approach proposed by the Proponent to deal with oil encapsulated in ice, and the likelihood of achieving the 48% recovery levels projected.

6.3.3 Protection of Wildlife and Shorelines

Given the limited effectiveness of offshore containment and recovery operations, it is clear that mitigative measures must include activities specifically designed to protect valuable wildlife, marine life and their habitat. These measures should include protection for sensitive and important habitat along shorelines and in estuaries.

The Proponent provided no satisfactory evidence of any plan or capability to carry out these coastal protection measures. On the other hand, there was evidence to indicate that sensitive and vulnerable shorelines and estuaries could not be protected. As well, it is apparent that this capability is not required of the Proponent by the government regulatory authority.

This extremely important deficiency results in part from the failure by the Proponent to make use of trajectory models to determine the most likely destination of spilled oil. It also results from the failure by the Proponent to plan for shoreline protection by having access to suitable equipment and trained personnel that could be deployed on short notice. The Proponent predicted that oil could come ashore within a few days of a blowout.

With regard to the use of trajectory models, the Proponent cited the lack of satisfactory models that could be used in this case, and the number of assumptions and variables involved in their effective use. This position, in the view of the Board, is inexplicable considering the availability and extensive use of trajectory models during the federal government's environmental assessment of Beaufort Sea hydrocarbon production and transportation, completed in July, 1984.

As well, the availability and usefulness of these models is referred to in a recent publication of the Canadian Petroleum Association and Independent Petroleum Association of Canada.

> Computer spill simulation models exist for predicting the behavior of offshore oil spills and predicting their movement as a function of local winds and currents. These models are used as a planning tool and as a real time method of forecasting the location and characteristics of an offshore spill at source (as a function of oil type, spill type and size, and environmental conditions) and can then describe the likely behavior of the oil in terms of the spill's persistence, dimensions and physical properties as a function of exposure to the environment. Sophisticated spill trajectory models are available for both the Grand Banks and Beaufort Sea Regions. They would be used to predict the expected trajectory, the speed of the slick's movement, and the location and timing of the possible shoreline contact.
>
> "Oil Spill Preparedness in the Upstream Petroleum Industry", IPAC/CPA, November 1989.

The position of the regulatory authority (COGLA) in relation to the use of trajectory models was also difficult to understand. In testimony before the Board, COGLA's staff stated that the requirement within their guidelines for the use of trajectory models had been discontinued.

> Over the years we found, however, that these before-the-fact trajectories really do not alter our contingency planning posture. It didn't matter to us in terms of approving a DPA whether the oil went five more miles to the west or five more miles to the north, if in the bottom line we did not require the petroleum operators to do anything differently as a consequence of that. (S. Gill, COGLA, Transcript, Vol. 2, p.249)

In order to mount effective measures to protect vulnerable and sensitive wildlife and habitat, it is necessary to use trajectory models to determine the likely destination of

oil from an offshore oil well blowout. It is also necessary to understand what species and habitat are likely to be exposed to oil, and the extent to which they would be sensitive to this exposure. From this knowledge comes the ability to identify priorities in protection efforts and to determine the appropriate type and amount of equipment and support required. The Proponent demonstrated no effective planning effort in this regard, and seemed to imply that none was possible before an actual spill occurred. However, the IPAC/CPA report states:

> More recently, Environment Canada (1987) published a new Environmental Atlas for Beaufort Sea Oil Spill Reponse, which incorporates all of the previously available information plus new data and resource information relevant to the task of mounting a practical and effective response to oil spills in the Beaufort Sea coastal area on a year round basis. The atlas is useful in three major areas: first to assist in the development of the most effective contingency plans for a specific area, second to provide a source document on which to base realistic oil spill training exercises, and third to act as a basic field reference for important environmental factors in an actual spill situation.
>
> "Oil Spill Preparedness in the Upstream Petroleum Industry", IPAC/CPA, November 1989.

6.3.4. Shoreline Cleanup

The "zone-of-influence" model submitted by the Proponent, although not accepted by a number of presenters or by the Board as a useful model for predictive purposes, demonstrated that in a worst case scenario, and in a most probable scenario, a considerable portion of coastline would become oiled. The Proponent stated that it was not possible to produce a detailed, useful shoreline cleanup response plan that would address the worst case scenario. The Board disagrees with this conclusion as does the IPAC/CPA report (op. cit.). The only information submitted by the Proponent to indicate potential response was a xeroxed copy of a document showing

cleanup approaches to different types of coastlines. Much of this document was clearly irrelevant to the Beaufort Sea.

In the judgment of the Board it is simply not an acceptable premise that planning for cleanup should take place after the fact. As in all other situations where planning is required in order to identify and mobilize resources, to train personnel and to determine appropriate responses and priorities, it must be done before the emergency atmosphere of an actual event interferes with the ability to exercise rational judgments and decisions, and before important options may be precluded. Yet this reactive premise clearly appears to be that which has been adopted by the Proponent and accepted by the government regulatory authority.

6.3.5 Government Intervention

At the present time, responsibility for dealing with offshore oil spills within Canadian jurisdiction is split between COGLA and the Canadian Coast Guard. COGLA is responsible for all spills arising from oil and gas exploration and production, while the Canadian Coast Guard is responsible for ship sourced oil spills. Because the major part of government oil spill equipment and expertise is lodged with the Canadian Coast Guard, a memorandum-of-understanding between these two agencies governs their relationship in the event of an oil spill arising from oil and gas exploration and production.

The Board is concerned over this split relationship and its implications in terms of response time and effectiveness in the event of an oil spill arising from an offshore oil blowout. There are several reasons for this concern.

The first is with regard to the potential for conflict between the two organizations with regard to judgments and decisions as the first line industry response to an offshore oil well blowout is monitored and assessed by them, and a decision is taken by them on government intervention to manage the spill response.

The second is that because oil spill equipment and expertise are lodged with the Canadian Coast Guard, there may be an inevitable priority given by them to the acquisition of equipment and expertise that is primarily applicable to ship sourced spills, despite the important differences in characteristics between this type of spill and those arising from an offshore oil well blowout.

Finally, the Board is concerned because the ultimate responsibility for assessing industry preparedness for an offshore oil blowout is placed with the agency that must consider a range of other factors in authorizing the activity. The technical advice and priorities of the Canadian Coast Guard in this connection will be advisory only and could be outweighed by other concerns.

The Proponent stated that it does not have great confidence in the ability of the Canadian government to significantly support an oil spill countermeasures program or to intervene and assume command of the cleanup should this become necessary.

> We don't feel comfortable -- we know how we would respond to a spill. We don't feel comfortable on how the government would respond. We know that there is a lead agency, single window approach. It's a philosophy or a policy the government -- we agree with that policy. Just based on past experience and what we've seen at Valdez, for instance, and as an example, we're not comfortable that that's the way things would happen. And I guess what we would like to do is see a

> simulation exercise, get all the players at the table and make sure that everyone understands each other, what their priorities are, and how they would work together... I guess my greatest fear as the person that wrote the oil spill plan is that we know that we have a single window lead agency through COGLA, and we understand how they fit into the response and that we would be dealing with them. What my fear is is that we would have other government agencies short circuiting that and phoning directly to Tuk to try and talk to a Jim Guthrie or to a Frank Mitton and taking up his time which is quite valuable and would stop him from conducting a proper response. (B. McKenzie, Gulf, Transcript, Vol. 5, pp.82-84)

The Board also notes that in the comprehensive public review of oil and gas production and transportation in the Beaufort Sea, conducted under the federal government's Environmental Assessment and Review Process (EARP), the EARP Panel recommended in 1984 that:

> ...a single authority, the Canadian Coast Guard, be empowered to administer, plan and direct a government contingency plan for any oil spill in Arctic marine waters whether it orginates from production platforms, pipelines, artificial islands, any form of shipping or from a source on shore that contaminates marine waters.
>
> "Final Report of the Environment Assessment Panel, Beaufort Sea Hydrocarbon Production and Transportation", Federal Environmental Assessment and Review Office, July 1984.

A similar recommendation was subsequently made by the EARP Panel assessing offshore hydrocarbon exploration on the west coast of Canada on behalf of the Governments of Canada and British Columbia.

6.4 Biological Effects

This section raised more questions than answers during the Public Review. The impact assessment methodology used by the Proponent was vague and non-quantitative. The impact

definitions that were used did not allow the Board to form useful judgments with regard to the levels of impact that were predicted. This concern about methodology was shared by the Board's consultant, Inuvialuit Game Council, Wildlife Management Advisory Councils of both the NWT and North Slope, Government of the Northwest Territories (Renewable Resources), Fisheries and Oceans, and Environment Canada. The Proponent's own consultants even suggested that more up-to-date assessment methodologies could have been used.

The vagueness and imprecision of the definitions used was illustrated by comparisons of predicted impacts between a 45 day versus a 66 day blowout. When Gulf revised its impact predictions to reflect the 66 day blowout scenario, they stated no changes were necessary to the impacts predicted for the 45 day spill. Thus, the spill of an additional 840,000 barrels of oil over a 21 day period did not change the predicted impacts. Their conclusion calls into question the usefulness of the impact assessment methodology.

A further shortcoming of the impact assessment was the failure by the Proponent to provide a review of the potential effects of the spill response activities on wildlife populations and resource harvesting. Again, Gulf's refusal to provide a shoreline cleanup plan made this type of assessment impossible.

Mr. Nelson Green, Vice-Chairman of the Inuvialuit Game Council stated the importance of wildlife to the Inuvialuit.

> On the impacts of the project on wildlife, Mr. Chairman, the Inuvialuit depend on the whales, seals, fish, caribou and the migratory birds for their food. The existence of our traditional culture depends on the continuation of this subsistence economy. Short term employment opportunities or financial compensation as a result of a major oil spill or a

> blowout shouldn't be viewed as a means of offsetting the loss or decline of our wildlife food sources. (Transcript, Vol. 1, p.120)

Mr. Roger Gruben, Chairman of the Inuvialuit Regional Corporation, provided as evidence to the Board a report entitled "Inuvialuit Petroleum Corporation Report on the Trip to Valdez to Investigate the matter of Compensation March, 1990". In this report the Inuvialuit Petroleum Corporation is very critical of the role of the scientific community in the *Exxon Valdez* spill response.

> The role of the scientific community has been negative. Most of the scientists worked either for Exxon or for the U.S. Government. Both parties have prohibited their scientists to release scientific data. Most of the scientific work is primarily done to protect Exxon and the U.S. government from lawsuits, instead of constructively trying to contribute to the best and most active restoration of wildlife and environment.
>
> The collection of scientific data was badly organized. Essentially one needs three types of data:
>
> - base line data prior to the spill
> - intensive data collection during the spill
> - systematic data with respect to the longer term impacts of the spill.
>
> Essentially, the scientific data collection during the spill started generally too late to be of use. Prior base line data were largely non-existent. As a result most of the scientific work done on the oil spill is questionable.
>
> "Inuvialuit Petroleum Corporation: Report on the trip to Valdez to investigate the matter of compensation", March 1990.

The importance of having appropriate, current base-line data for wildlife impact assessment prior to a major oil spill was emphasized numerous times throughout the Public Review.

The Board, based on the Proponent's failure to differentiate between the effects of a 45 day and 66 day blowout, the lack of spill trajectory analysis, the lack of an adequate analysis of spill response impacts, and the use of vague impact assessment methodology, concluded that the environmental assessment is incomplete and inadequate.

6.5 Liability/Wildlife Compensation

6.5.1 Board's Authority

The relevant provisions of the IFA have been set out earlier in this decision.

While the Board's jurisdiction to deal with the issue of liability and compensation is not clearly set out, it arises from the Board's authority to "estimate the potential liability of the developer taking into consideration the balance between economic factors, including the ability of the developer to pay, and environmental factors". While the role of the Board under the wildlife compensation provisions is advisory only, the federal government under section 13(12) of the IFA has undertaken not to approve any development to which these provisions apply until the environmental aspects of the project have been adequately canvassed and appropriate preventative and mitigative conditions imposed.

For the Board to estimate potential liability it must also consider issues related to compensation in general. To this end, the Board, in assessing Esso's Isserk I-15 Drilling Program, reviewed the Wildlife Compensation Agreement entered into by Esso and the Inuvialuit Game Council and concluded that it was not necessary to consider that Agreement in detail in the circumstances of that application. However, in the future, the Board may wish to recommend what issues should be dealt

with in such an agreement and how they should be dealt with. It is noted, for example, that the IRC in its *Exxon Valdez* report recommends that such an agreement should provide for the establishment of a Wildlife Compensaton Fund.

6.5.2 Actual vs. Future Harvest Loss

An important issue to consider in estimating Gulf's potential liability is whether the liability extends to future as well as actual harvest loss. Under section 13(2) of the IFA, "actual wildlife harvest loss" and "future harvest loss", are defined separately as follows:

> "Actual wildlife harvest loss" means provable loss or diminution of wildlife harvesting, or damage to property used in harvesting wildlife, or both. [This includes damage or loss of harvesting equipment and loss of hunting, fishing or trapping income, relocation costs, etc.]
>
> "Future harvest loss" means provable damage to habitat or disruption of harvestable wildlife having a foreseeable negative impact on future wildlife harvesting.

While section 13(3) states that "the Inuvialuit shall be compensated for actual wildlife harvest loss resulting from development in the Inuvialuit Settlement Region", section 13(4) merely states that "the Inuvialuit shall benefit from environmental protection measures designed to reduce future harvest loss" resulting from such development. This is because the Inuvialuit have the right to receive direct compensation for actual harvest loss with recourse to arbitration and a financial instrument to guarantee payment. In the case of future harvest loss, the Inuvialuit may also apply to the Arbitration Board to obtain recommendations with respect to mitigative and remedial measures. The "potential liability" of Gulf therefore extends to future harvest loss.

Furthermore, in addition to the rights under the IFA, the Inuvialuit can obtain compensation for such loss in the courts under common law principles or under federal and territorial statutes. Therefore, Gulf's potential liability to the Inuvialuit extends beyond the reaches of the IFA and includes compensation which might be payable under such statutes as the Fisheries Act or the Arctic Waters Pollution Prevention Act.

6.5.3 Financial Responsibility

Section 13(13) follows up on the requirement that the potential liability of the developer be estimated and requires that "every developer... shall be required to prove financial responsibility before being authorized to undertake any development in the Inuvialuit Settlement Region". One difficulty with respect to this section is that it does not clarify to whom this proof must be demonstrated. However, it is reasonable to assume that the Board and other interested parties, such as the Inuvialuit Game Council, can request that Gulf prove its financial responsibility. If either the Board or an interested party is not satisfied with Gulf's financial responsibility, they should make their views known to the appropriate government authorities. It is important in this regard to determine who the actual developer or developers are (co-contractants are included in the definition of "developer"), and to ensure that each party which might be considered a developer prove its financial responsibility. As well, because liability is both absolute and joint and several (section 13(15)), Gulf will have to prove that it is financially responsible for the entire development project and not merely for the work for which it is directly responsible.

Section 13(14) allows the government authority to require a developer to provide financial responsibility in the form of a letter of credit, guarantee or indemnity bond, or any

other form of security it chooses. Once again, the Board should make recommendations to the government with respect to its views on this matter.

6.5.4 Gulf's Submission

In Chapter 8.0 of Gulf's submission, Gulf discusses the issue of compensation/liability. According to its submission, Gulf's corporate compensation guidelines state that compensation agreements will be negotiated directly with potentially affected harvesters before any loss occurs. In this regard, Gulf has already signed a Wildlife Compensation Agreement with the Inuvialuit Game Council which was extended on April 20, 1988 to cover all exploratory drillings and support activities conducted by or for Gulf as operator. According to Gulf, a position with which the Board agrees, this agreement covers all *Kulluk* activities described in this submission.

Gulf's estimate of actual harvest loss liability was a maximum of $5 million over five years. The Board's consultants reviewed that figure and concluded that it was reasonably accurate. It is to be noted that Gulf's corporate insurance contains a specific rider extending that insurance to cover Gulf's potential liability under the Wildlife Compensation Agreement.

As Mr. Mitton confirmed, however, that Agreement is designed to cover and deal with actual harvest loss. The issues of Gulf's liability for future harvest loss and for mitigative and remedial measures - cleanup - are not covered by that Agreement and are not so easily resolved.

6.5.5 Provisions of the IFA Governing Estimate of Potential Liability

As previously noted, section 13(11) sets out the powers of the Board when reviewing Gulf's application. Section 13(11) reads as follows:

> Where pursuant to sub-section (10) a proposal is referred to the Review Board, it shall, on the basis of the evidence and information before it, recommend to the government authority empowered to approve the proposed development:
>
> > (a) terms and conditions relating to the mitigative and remedial measures that it considers necessary to minimize any negative impact on wildlife harvesting and
> >
> > (b) an estimate of the potential liability of the developer, determined on a worst case scenario, taking into consideration the balance between economic factors, including the ability of the developer to pay, and environmental factors.

Clause (a) has been considered in the foregoing part of this decision. Clause (b) must now be considered.

First, clause (b) must be placed in context. It is one of a group of provisions which support section 13(15) of the IFA. This section imposes on the developer absolute liability without proof of fault or negligence to compensate the Inuvialuit and to pay the cost of mitigative and remedial measures where it is established that actual or future wildlife loss has been caused by the development. Section 13(13) requires the developer to prove financial responsibility before proceeding and section 13(14) enables the government authority to require the developer to ensure financial responsibility with respect to the developer's obligations pursuant to section 13 in the form of a letter of credit, guarantee or indemnity bond or any other satisfactory form.

Section 13(18) provides additional recourses to the Inuvialuit where actual or future harvest loss results from a development. One of these is to apply to the Arbitration Board established pursuant to the IFA to make recommendations to the government authority with respect to remedial measures, including cleanup, habitat restoration and reclamation. The last sentence of this section states that:

> (c) The obligation of a developer for the taking of mitigative and remedial measures is subject to any limits established by the authority empowered to approve the proposed development.

Finally, an important benefit to the Inuvialuit is contained in section 13(16) which imposes on Canada the responsibility to assume a developer's liability for mitigative and remedial measures where the developer is unable or fails to meet its responsibilities - the so-called "backstop" provision.

Given this context, it is plain where section 13(11)(b) fits into the scheme of the IFA. Its requirement that the Board estimate the potential liability of the developer is intended to provide the government authority with a measure by which it can determine what the financial responsibility requirements should be under 13(14) and whether limits on liability should be established pursuant to 13(18)(c).

6.5.6 Interpretation of IFA Provisions

There is a consensus that the Board's estimate of potential liability is to serve the purposes stated above. However, there seems to be some disagreement, or, at least, some misunderstanding, as how the applicable provisions of the IFA are intended to operate. In the case of section 13(18)(c), the governmental authorities interpret the power to establish

limits as applicable in all cases where absolute liability is imposed on the developer under the IFA for actual or future wildlife loss or the cost of mitigative and remedial measures. On their view of the matter, the government authority in Isserk I-15 imposed $40 million as a ceiling on absolute liability for cleanup, restoration and reclamation costs, being the amount established pursuant to SOR/87-331 for northern wells under AWPPA and OGPCA.

On the other hand, the Board notes that the governmental authority's power to set limits is stated within section 13(18)(c), which is a subsection providing for arbitration, and believes that it is only in the case where arbitration is invoked that the power to limit can be exercised. This view is strengthened by the fact that what may be limited under 13(18)(a) is not "absolute liability" or even "liability" but the "obligation of the developer for the taking of mitigative and remedial measures" which is likely a reference to obligations resulting from the arbitration process. Since no arbitration proceedings respecting mitigative and remedial measures would be initiated at the time when a development is being reviewed by the Board or at the time of the approval of it by the relevant government authority, this interpretation would mean that there is no power at this time to limit absolute liability with respect to Gulf's proposal.

It is not, however, the function of this Board to resolve that issue. The Board must proceed on the basis that the government view is correct, at least in the sense that government will conduct itself in accordance with that view.

If the government view that a limit can be set is correct, there is a widespread misunderstanding concerning the government's "backstop" liability. This misunderstanding is

the belief that the "backstop" will cover all costs of mitigative and remedial measures that the developer fails or is unable to pay for, however much they may be. To the contrary, if the "backstop" applies only to "the developer's liability", the result of limiting the developer's liability is to limit the government's "backstop" liability as well. This position appeared to come as a surprise to the Inuvialuit attending the Public Review. If the limitation of $40 million applied to Isserk I-15 were applied to Gulf's proposal before the Board, both Gulf and the government would be free of any legal obligation to pay for costs exceeding $40 million in the event of a blowout. Beyond $40 million, Gulf would be liable only if negligent. This means that any person claiming expenses from Gulf beyond $40 million would potentially endure the expense and delay of protracted litigation as Gulf and its insurers sought to shield themselves from liability, and the so-called "backstop" provisions would be wholly illusory.

6.5.7 Board's Decision Concerning 13(11)(b)

Section 13(11)(b) requires the Board to base its estimate of potential liability on a worst case scenario. In its Submission to the Board, Gulf stated that the worst case would be a blowout releasing 40,000 barrels of oil/day for 66 days - a release ten times larger than the *Exxon Valdez* oil spill in Alaska.

Gulf also stated that it would control the blowout by drilling a relief well to shut off the blowout, and that it would mount an offshore containment and cleanup procedure to deal with oil that escaped from the well site at a combined cost estimated to be in the range of $400 million, made up of $150 million to drill a relief well and $250 million for offshore cleanup and containment.

It is perhaps a coincidence that that number closely approximates the $410 million that Mr. Gill, on behalf of COGLA, said was the amount of "financial capacity" COGLA looked to in approving a development. More importantly, though, that "financial capacity", whatever that may mean, bears no relation to the historical and current upper limit imposed on absolute liability, namely $40 million. There are no security requirements matching the $410 million level of financial capacity looked to by COGLA, no legal ramifications under any relevant legislation of that number and no guarantee that this level will be maintained during the duration of the DPA. While such an inquiry may give some level of comfort to COGLA, the fact is that based on the evidence on this Public Review the Board does not share that level of comfort.

Gulf acknowledged that large volumes of oil could reach shorelines along the Tuktoyaktuk Peninsula and Richards Island and that if the worst case or even a moderate case did occur, it could result in devastating impacts to sensitive shorelines and to birds, fish and mammals that could last for decades.

However, Gulf took the position that it could not provide to the Board any reliable or useful estimates as to where that oil might come ashore, what beaches and populations would be affected or what costs would be incurred for cleanup, restoration and reclamation. Therefore, they could not provide to the Board evidence or information that would enable the Board to make the estimate of potential liability required by section 13(11)(b).

On June 9 the Chairman of the Board adjourned the public review proceedings until June 18 to give Gulf and other submitters the opportunity to provide further evidence and information and to comment on these liability issues. Gulf had

previously been informed, on May 4, through the Interrogatory Process, that the Board would require this evidence and information. Although Gulf indicated it would provide responses to the unanswered Interrogatories during the course of the Public Review, Gulf ultimately declined to provide any further evidence and information concerning the costs arising from oil coming on shore other than to make a presentation showing the variables and assumptions that an estimate of these costs would require. Most of these variables and assumptions were the same as those required to define the worst case scenario and Gulf seemed quite prepared to make whatever assumptions were necessary in all cases but for those specifically dealing with onshore impacts. In the result, the Board's decision must be based on the state of the evidence and information before it as of June 9 augmented by the evidence of DIAND and COGLA.

The evidence in question deals with insurance, Gulf's available line of credit, and backstopping.

In its application and opening remarks, Gulf asserted that it has $600 million of insurance available to deal with a blow-out and that, with the addition of partners, that insurance coverage could reach as high as $1.5 billion. Those assertions were inaccurate.

Gulf's policies of insurance, which are among their general corporate policies, indeed contain two coverages totalling $600 million. However, the effect of the policies is that a total of $300 million is the maximum amount available for cleanup costs and damage to property or for harvest loss. The first $300 million of that insurance is dedicated to and only covers the costs of well control and relief well drilling. If, as in this case, those costs total $150 million, the excess of that coverage is not available for seepage and

pollution expenses and costs and the total available insurance for these purposes would still be $300 million.

Moreover, the policies are what is known as 100% policies. In other words, the coverage reduces depending on the percentage interest Gulf has in the particular well in question. If Gulf owns 50%, for example, then the $300 million pollution coverage maximum reduces to $150 million. The addition of partners has the exact opposite effect to that contended by Gulf.

Most importantly, however, an analysis of the policies indicated that, based on Gulf's relief well and offshore containment estimates, the available insurance proceeds would likely be expended almost in their entirety by the time any oil came ashore.

That led the Board to inquire into Gulf's general financial health and the allegedly available $1.2 billion line of credit. The evidence in that regard was most unsatisfactory and, given the opportunity to provide further evidence, Gulf refused, leaving the Board in a virtually untenable position. That is particularly so when Gulf advised the Board that, even on the basis of the partially inaccurate and partially unsubstantiated picture presented, the costs of a worst case blow-out might be beyond Gulf's ability to pay.

The backstop provisions of the IFA and other legislation are designed to cover situations where a developer is unable to pay. The policies applied to and implementation of those provisions by government, however, has made them almost of no value.

As already discussed, the effect of the limit on absolute liability policy adopted by DIAND has, historically,

been to limit the backstop obligation to the $40 million required under the AWPPA. Moreover, an instrument has been required to ensure the developer's ability to meet that level of liability. Accordingly, the goverment's backstop obligation is limited to backstopping a wholly inadequate level of absolute liability which the government ensures can be met by the developer in the first place.

In addition, that limit itself has, in the past, been reduced from $80 million to $40 million, apparently at the instigation of industry, and DIAND has recently contented itself with insurance policies as an appropriate means of securing that liability. The inappropriateness of insurance, in that regard, if it is not self-evident, was highlighted by the inquiry into the *Exxon Valdez* (see Appendix L of that report).

The basis for setting the limit at $40 million is not only unclear, but it would appear to be contrary to various indicators of which DIAND has undoubtedly been aware. Not only have they routinely been tendered financial instruments (insurance policies) greatly in excess of that limit, COGLA itself in a study, admittedly now out of date, has estimated offshore cleanup costs vastly in excess of that sum.

It is painfully obvious that DIAND's policies and practices with respect to limits on absolute liability, the obligation of the government to backstop (as opposed to politically driven voluntary efforts) and the acceptability of financial instruments to secure the meeting of liability require serious over-haul and extensive critical analysis.

When adjourning the proceedings on June 9, the Chairman warned Gulf that, without further evidence and

information on the subject of costs, the Board would not be able to make the assessment of impacts and the estimate of potential liability called for by the IFA.

This is the situation that still prevails. In summary, the evidence and information before the Board establishes that, in addition to the admitted costs of $150 million for relief well drilling and $250 million for on-site containment and cleanup, there will be further costs for shoreline cleanup, restoration and reclamation that, by Gulf's own admission, could exceed its financial capabilities. But these costs have not been estimated and without these estimates, the Board cannot discharge its responsibility under 13(11)(b) to provide an estimate of potential liability on a worst case scenario.

On this ground alone, the Board is justified in recommending to the government authority that Gulf's proposal be <u>not</u> approved. The reason is that a mandatory requirement of the IFA has not been and cannot be fulfilled.

More importantly, however, the effect of Mr. Gibson's evidence on behalf of DIAND is that, without an estimate of liability being provided by the Board, there will be little or no rationale behind the imposition of any upper limit on absolute liability. That will have a corresponding impact on the backstop provisions. Given past history, this situation is so fraught with financial peril for the Inuvialuit and the region as a whole, that, coupled with the other factors already discussed, the Board would be acting irresponsibly to recommend otherwise.

6.6 International Implications

In the event of a major oil spill, Gulf forecast impacts only on the Inuvialuit Settlement Region. They did not take into account the consequences of oil reaching the Alaskan portion of the Beaufort Sea even though, in the event of a late season oil well blowout, quantities of oil encapsulated in ice would be moved to areas off the coast of Alaska where the oil would be released to the marine environment during the spring break-up.

The Inuvialuit Game Council made it very clear during the Public Review, and in their June 4, 1990 submission, that they did not want to jeopardize their cooperative relationship with the Inupiat of Alaska (e.g., Polar Bear Management Plan). They wanted the Canadian Government and Industry to inform the Inupiat of Alaska of the consequences which may be encountered should a major oil spill occur.

The presentations of both WMAC (NS) and WMAC (NWT) also emphasized this concern. WMAC (NS) stated in its June 4, 1990 presentation:

> We would suggest that, given the migratory nature of a potential spill and the wildlife species that such a spill could affect, careful consideration be given to recognizing the Alaskan interest. Canada and the territorial governments have made clear their interest and expectations regarding consultation on transboundary impacts. If Canada's ANWR [Alaska National Wildlife Range] position is to be credible, Canadians must surely stand by these same standards and act on the basis of some principle of equality and reciprocity in dealing with Alaskan interests. (Transcript, Vol. 1, p.147)

6.7 Government Regulation

Perhaps no other element of the review has proven to be more disconcerting and disturbing to the Board than the inescapable conclusion that, based upon the information

available to the Board, the regulatory authorities of the Government of Canada responsible for offshore oil and gas exploration, have failed to discharge their mandated obligations in a responsible and effective manner.

The single most important issue relating to the environmental acceptability of offshore exploration for oil and natural gas is the environmental threat posed by a major offshore oil blowout in which significant quantities of oil are discharged into an open water, marine environment. While there is general agreement that the likelihood of this occurrence is small, there is universal agreement that it cannot be precluded as a possibility. In fact, operating under far less adverse conditions than those of the Beaufort Sea, major oil blowouts have occurred in the North Sea, off the west coast of the United States, and in the Gulf of Mexico. Three blowouts, fortunately not involving oil, have already been experienced in the Beaufort Sea during the 15 years of offshore exploration. Two blowouts have occurred off the east coast of Canada. It is because of this concern that the Government of the United States has recently excluded major portions of their east and west coasts from offshore oil and gas exploration. The possibility of an oil well blowout in the Canadian Beaufort Sea can simply not be excluded. It must be anticipated and planned for if the activity is to be allowed to occur at all.

The high level of expenditure carried out by the Canadian oil and gas industry in relation to technology development, research, planning, training, and material acquisition, against the possibility of an offshore oil blowout, is a clear indication of the level of concern that should be felt in terms of the environmental impacts that could result from an offshore oil blowout.

Yet it seems equally clear to the Board that the focus of government regulatory effort has not been with regard to this possibility. To the contrary, it seems apparent that the focus of regulatory control has been based upon the assumption that a major offshore oil blowout will not occur. A number of particular points, based upon information presented and available to the Board, lead to this disturbing conclusion.

1. Until identified by the Board in its report on the Esso et al Isserk I-15 drilling program, COGLA did not require the preparation of a detailed relief well plan as a condition of offshore drilling approval. Although COGLA has accepted the earlier recommendation of the Board that this condition be applied, their policy for the formulation and review of these plans has not yet been completed.

2. The Board has concluded that the current limit of September 25 on the operating season for open water drilling, with provision for extensions, is based upon out-of-date and inadequate information. It does not satisfactorily meet the stated policy of the Government of Canada for a "same season relief well" capability under all circumstances.

3. Extensions to drilling seasons may be, and have been, granted by COGLA despite the lack of objective and reasonable criteria against which an extension can be evaluated. No such criteria for this purpose have been developed.

4. COGLA has not required, or contributed to the production of, comprehensive and detailed contingency plans governing the full range of oil spill countermeasures which should include resource and

shoreline protection, and cleanup measures, for major oil spills arising from an offshore, open water oil blowout in the Beaufort Sea.

5. COGLA has not established satisfactory standards to govern the acceptable level, location and type of equipment necessary for countermeasures and their support, or for the training of countermeasure personnel.

6. COGLA has not required the testing, under realistic operational conditions, of oil spill equipment, personnel, command systems and plans.

7. The comprehensive annual government/industry contingency planning exercise that was conducted during the early years of Beaufort Sea offshore exploration has been discontinued.

8. Despite the gradual decline in the level and type of oil and gas industry support equipment and facilities since the early 1980s, as vessels are shut down or removed and facilities downsized, no comprehensive analysis appears to have been undertaken with regard to industry capabilities to mount and support an effective countermeasure program, or to determine the implications of this decline in terms of the regulatory process.

9. Conditions attached to Drilling Program Approvals (DPA's) with important implications to wildlife harvesters in the Beaufort Sea region, have been subsequently removed by COGLA with no notice or consultation with the public concerned.

10. The requirement for oil spill trajectory models, contained in the 1986 COGLA guidelines for the preparation of contingency plans to be attached to Drilling Program Approvals, was removed by COGLA the following year wih respect to the Beaufort Sea and East Coast. This change was introduced without any widespread consultation. Revisions to the original guidelines have yet to be published.

11. After 15 years of offshore oil and gas exploration in the region, COGLA and other government agencies are not able to estimate with any reasonable degree of confidence what the overall cost of countermeasures and cleanup might be in the event of a most probable or worst case offshore oil blowout. COGLA does not yet, therefore, have the capability of establishing reasonable levels of absolute liability for companies engaged in offshore oil and gas exploration. For the same reason, it does not have the capability of judging the capacity of these companies to meet their potential liability.

12. The Government of Canada has fixed absolute liability for offshore oil and gas exploration companies in the Beaufort Sea, and for itself in terms of backstopping the cost of countermeasures and cleanup, at 40 million dollars. They are unable to provide any rationale for the selection of this amount.

13. The Government of Canada has reduced the amount of financial security required of companies engaged in offshore oil and gas exploration in the Beaufort Sea from 80 million dollars to 40 million dollars, and are unable to provide a considered rationale for the selection of either amount. It is generally accepted,

and also accepted by the Board, that a rough analysis of the costs associated with the countermeasures and cleanup efforts found necessary in previous oil spills would far exceed this amount. In the case of this review, based on evidence submitted by the Proponent, these amounts would be exceeded in the offshore containment and recovery activities alone.

14. The Government of Canada has altered the type of financial security instruments accepted from prospective operators, from bonds to insurance, despite indications that the latter form of instrument could present considerably greater difficulties in accessing or recovering funds.

15. COGLA does not appear to have developed a rational standard or process against which the financial capability of an operator, in terms of their potential overall liability, can be assessed. The current standard of $410 million does not appear to be substantiated by objective criteria, or even by a rough estimate of the potential costs that might be involved.

As a result of these considerations, the Board is of the view that the government regulatory authorities, particularly COGLA, have not adequately discharged their responsibility to protect the environment of the Beaufort Sea in relation to offshore, open water drilling activities falling within their mandated authority. There is every reason to fear that should a major offshore oil well blowout occur in the Beaufort Sea, the exposure of the Canadian government to extreme costs for countermeasures and cleanup would be severe. There is also reason to fear that the countermeasure and

cleanup activity would be subject to the same degree of delay, confusion and inefficiency that appears to have characterized the *Exxon Valdez* oil spill.

7.0 RECOMMENDATIONS

7.1 Introduction

The Board has not recommended approval of Gulf's Drilling Program, therefore there are no terms and conditions to be recommended. However, the problems identified in the Board's decision are of such importance that it is imperative they be urgently addressed and resolved in order to facilitate future drilling activity.

The recommendations that follow should not be viewed or construed in any way as detracting from the Board's decision to recommend against Gulf's Drilling Program proceeding. Nor should they be viewed as constituting terms and conditions upon which, in the Board's view, it would be proper or responsible to permit Gulf's Drilling Program to go ahead.

Recommendation 1

> **The governmental responsibility for oil spill countermeasure and cleanup activities, either in support of a developer or pursuant to intervention obligations must be concentrated in one governmental agency, preferably the Canadian Coast Guard, regardless of the source of the oil spill.**

The Board recognizes that other tribunals and agencies have made similar recommendations following their review of offshore oil and gas activities. Some are presently examining these issues in greater depth than occurred during the course of this public review. Nevertheless, the Board notes that the distinction between a ship-sourced oil spill and an oil and gas

drilling activity sourced spill in terms of who is responsible for countermeasures and cleanup is, in large part, an artificial one. The potential for conflict and confusion in planning for and responding to emergencies is clear, and has been commented on in detail elsewhere in the Board's decision.

Recommendation 2

> **The governmental authority responsible for oil spill cleanup must become the approval agency for all oil spill contingency plans which should include oil spill countermeasure plans, oil spill cleanup plans and oil spill related wildlife protection plans. The prior approval of all such plans must be made a condition of the granting of any DPA.**

As noted in this decision, the absence of the requirement of such plans on the part of the Government of Canada and of acceptable plans on the part of Gulf at this stage of Beaufort Sea drilling is difficult to understand. This recommendation should be immediately instituted.

Recommendation 3

> **A surprise exercise to test the effectiveness of contingency plans, and to demonstrate countermeasure and cleanup capabilities, must be conducted annually in the Beaufort Sea. The exercise must be conducted in realistic operating conditions.**

There is considerable concern about response efficiency and actual operating capability, neither of which have ever truly been tested. The exercises to be conducted should be surprise, offshore, and in realistic conditions, with

due regard, of course, to safety. They should involve government, industry and local people, and include the actual deployment of equipment and personnel. Finally, an independent assessment and critique of each annual exercise should be conducted and made available to the public.

Recommendation 4

> **The work currently being done by the Department of Indian Affairs and Northern Development on all aspects of compensation and liability, as recommended by the Board after the Isserk I-15 Public Review, must be continued and accelerated. A final report to address these issues should be produced and tabled by December 31, 1990.**

The terms of reference that resulted from the preliminary session held in Inuvik on March 21 - 22, 1990, should be further focused on recommendations 1, 3 and 4 from that workshop:

1. To proceed towards a generic wildlife compensation agreement, generally applicable to all oil and gas operators in the Inuvialuit Settlement Area by:

   i) reporting back to the Canadian Petroleum Association on the results of this workshop;

   ii) reviewing the existing Gulf-IGC and ESSO-IGC wildlife compensation agreements;

   iii) meeting to establish principles; and

   iv) "fine tuning" the existing agreements towards development of a generic wildlife compensation agreement.

3. Create a generally acceptable procedure for developing, and estimating the potential cost of, a "worst case" scenario by:

   i) reaching agreement on definition of worst case scenario(s);

   ii) setting terms of reference for an independent contract;

   iii) initiating a contract to estimate the potential cost of wildlife compensation and oil spill clean up from a worst case incident.

4. Re-examine the issue of financial capability including the type and level of financial instruments presently available under all relevant legislation including the AWPPA, OGPCA and Inuvialuit Final Agreement.

Recommendation 5

Proper guidelines must be prepared for assessing instruments of financial responsibility.

The advantage of certain instruments over others is obvious. On the other hand, it is not desirable to unduly restrict a developer's cash flow or borrowing capacity. The choice of instruments should be driven by an assessment of risk - both environmental and financial. In addition, with due respect to the requirements of corporate confidentiality, for each DPA approved, a written analysis of the financial instrument chosen, and its relationship to the risk being assumed, should be prepared and made available to the public.

Recommendation 6

> **An independent task force must be established to examine the research, management and funding requirements necessary to ensure that the information database is in place to facilitate environmental impact assessment and countermeasures and contingency planning, relating to an offshore oil spill in the Beaufort Sea.**

It is recommended that this task force have a broadly based membership, drawing on the academic and consulting communities as well as government and industry. The specific terms of reference are beyond the scope of this decision, but its objectives should be to review the current status of biological research and baseline data, to review the current approach to research priorities, management and funding, to determine the priorities with regard to further research, and to determine how that research should be managed and funded.

While, obviously, the Board cannot be involved in the work of the task force, it would be pleased to assist in establishing its terms of reference. There is, based on the evidence and information presented at this Public Review, an urgent need to develop an up to date database to support oil spill assessment countermeasures and contingency planning.

Recommendation 7

> **The Department of Fisheries and Oceans and the Department of Environment must undertake, as a matter of the highest priority, a study to define the assessment methodology that should be used in determining the impacts that might be associated with a major oil spill incident in the Beaufort Sea. The**

Canadian Petroleum Association, the Inuvialuit, and the Governments of the Northwest Territories and Yukon, should be involved in developing the terms of reference for this study and in its implementation to the extent appropriate.

During the course of the Public Review, numerous presenters indicated their concern over the lack of a standard, and widely accepted, methodology for the assessment of the biological impacts that could be associated with an offshore oil spill. A number of these presenters were government agencies with responsibilities for marine and wildlife management and protection. Accordingly, the Board feels these concerns must be taken very seriously and a high priority attached to the development of a methodology that could be widely accepted by industry, government and wildlife harvesters.

Recommendation 8

More appropriate criteria must be developed to establish dates to define the safe operating season for each drill system employed in the offshore Beaufort Sea, and within that season, the cut-off date for risk drilling. The date for the operating season should be fixed for each drill system, based upon the individual characteristics of that system as they affect the ability of the system to operate safely in the conditions likely to be encountered. Within each operating season a cut-off date for risk drilling should be determined based upon the length of time required to drill a relief well before the season ends. No extensions should be granted with respect to the operating season or the cut-off date for risk drilling.

A number of different drill systems are, or have been, employed in Beaufort Sea offshore exploration. Each of these systems have different physical and operating characteristics which substantially affect their ability to operate safely in extreme conditions. Some can operate safely and effectively longer than others. It is reasonable, therefore, that fixed dates for the end of the operating season should be designed to accommodate these differences.

At the same time, in order to maintain the current policy of "same season" relief well capability, it is necessary to establish a cut-off date for risk drilling within each fixed operating season. This date should be based upon the number of days required to drill a relief well, and backed up from the final date of the operating season determined for each drill system. The number of days required to drill a relief well may vary according to the depth of the well and other factors. Accordingly, within each operating season, the cut-off date for risk drilling may vary considerably.

Recommendation 9

Because of their significant legal, economical and cultural interests in wildlife harvesting, the Inupiat and the Inuvialuit should be formally involved in annual meetings between the Government of Canada and the Government of the United States held to discuss current and future activities in the Beaufort Sea.

Although information presented to the Board suggested that meetings between the governments of Canada and the United States take place in which oil and gas activities in the Beaufort Sea are discussed, these meetings appear to be somewhat informal.

Considering the importance of these activities in relationship to co-operative contingency planning and countermeasure operations, as well as the potential financial cost that might be experienced by the aboriginal people living on both sides of the international boundary, the Board feels that these meetings must be formalized and cover a comprehensive agenda of relevant issues.

Due to their legal interest and their cultural and economic concerns, the Inuvialuit and the Inupiat must be involved.

Within the context of these meetings, the participants should work towards the development of a formal trans-boundary agreement covering co-operation in contingency planning and countermeasure operations relating to Beaufort Sea oil spills. Separate from those meetings, the Government of Canada should negotiate with the United States government for an agreement to protect the interests of the Inuvialuit and other residents of the Beaufort Sea region in the event of any financial losses experienced due to an oil spill originating in Alaska waters. This agreement would be reciprocal to the "Canada Agreement", already in place, which establishes a $20 million fund to protect Alaskans.

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Environmental Impact Review Board

James I. Livingstone Chairman

Ewan Cotterill Member

Calvin Pokiak Member

Mike Stutter Member

Albert Elias Member

APPENDIX A

EIRB
Environmental Impact Review Board
P.O. BOX 2120. INUVIK. N.W.T. CANADA X0E 0T0

TEL: (403) 979-2828
FAX: (403) 979-2610

APRIL 10, 1990

PUBLIC NOTICE

A Public Review of the development activity known as the Kulluk Drilling Program 1990-1992, proposed by **Gulf Canada Resources Limited**, has been initiated by the **Environmental Impact Review Board**. This Public Review is being held pursuant to the Inuvialuit Final Agreement which was approved, given effect and declared valid by the Western Arctic (Inuvialuit) Claims Settlement Act, being Chapter 24 of the Statutes of Canada 32-33, Elizabeth II (1984).

The Public Review will commence with a public meeting to be held at **Family Hall** in the **Town of Inuvik**, beginning at 9:00 a.m. local time on **Monday, June 4, 1990**, and continuing thereafter as may be necessary.

The purpose of this public meeting is to review the potential environmental impacts of the proposed Kulluk Drilling Program 1990-1992 to determine whether the **Environmental Impact Review Board** should:

(i) reject the proposal,

(ii) approve the proposal subject to terms and conditions, or

(iii) require that a full public hearing be held to review the proposal in more detail.

Should the **Environmental Impact Review Board** approve the proposal following the public meeting, it will, on the basis of the evidence and information before it, make recommendations to the government authorities empowered to approve the proposal concerning:

(i) Terms and Conditions relating to the mitigative and remedial measures that it considers necessary to minimize any negative impact on wildlife harvesting,

(ii) an estimate of the potential liability of the developer, determined on a worst case scenario, and taking into consideration the balance between economic factors, including the ability of the developer to pay, and environmental factors.

Organizations, government agencies, and members of the public are invited to attend the public meeting in order to make submissions to the **Environmental Impact Review Board** concerning these matters and the recommendations that the **Environmental Impact Review Board** might make.

The **Environmental Impact Review Board** requests that those individuals and/or organizations intending to make submissions should contact the Secretary of the **Environmental Impact Review Board** by telephone or letter on or before **APRIL 24, 1990**. Further important information concerning the public review process will be sent to each submitter once this notification of intent to participate is received.

Individuals and/or organizations intending to file written submissions must provide ten (10) copies of the submission to the Secretary at the **Environmental Impact Review Board** office in Inuvik on or before **MAY 25, 1990**. Individuals who have not given advance notice of their intention to participate may be permitted to make oral submissions to the public meeting after all others have been heard.

Copies of the Kulluk Drilling Program 1990-1992: Submission to the Environmental Impact Review Board, which describes the proposed project and analyzes the potential environmental effects, are available for examination during normal business hours at the offices of the Joint Secretariat, 107 Mackenzie Road, Inuvik, Northwest Territories. Limited numbers of copies of the submission are available through the Secretary of the **Environmental Impact Review Board.**

Anyone wishing further information concerning this public review, or who would like a copy of the **Environmental Impact Review Board's** Operating Procedures, should contact:

Mr. Gary Wagner
Secretary
Environmental Impact Review Board
P.O. Box 2120
Inuvik, Northwest Territories
X0E 0T0

telephone: (403) 979-2828
telecopier: (403) 979-2610

THIS NOTICE DATED APRIL 10, 1990

APPENDIX B

GULF KULLUK 1990 - 1992 DRILLING PROGRAM

PUBLIC REVIEW

LIST OF PARTICIPANTS/SUBMITTERS

1. Inuvialuit Game Council [IGC]
2. Wildlife Management Advisory Council (NWT) [WMAC(NWT)]
3. Wildlife Management Advisory Council (North Slope) [WMAC(NS)]
4. Government of the Northwest Territories [GNWT]
5. Government of Yukon [YTG]
6. Department of the Environment [DOE]
7. Department of Fisheries and Oceans [DFO]
8. Canadian Coast Guard [CCG]
9. Canada Oil and Gas Lands Administration [COGLA]
10. Department of Indian Affairs and Northern Development [DIAND]
11. Inuvialuit Regional Corporation [IRC]
12. Department of Energy, Mines and Resources
13. Mackenzie Delta - Beaufort Sea Land Use Planning Commission
14. Yukon Conservation Society
15. Incorporated Hamlet of Tuktoyaktuk

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APPENDIX C

Definition of Terms

BLOWOUT - Uncontrolled flow of gas, oil or other well fluid from a well during drilling due to formation pressure exceeding the pressure exerted by the column of drilling mud.

BLOWOUT PREVENTER - Hydraulically or mechanically actuated high pressure valve installed at the wellhead to control pressure within the well.

CASING - Steel pipe, threaded together and cemented into a wall as drilling progresses to prevent the wall of the hole caving in during drilling and to provide a means of extracting oil/gas is the well is productive.

CASING STRING - Total metre of casing run in a well.

CIRCULATE - Cycling of the drilling fluid through the drilling string and well bore while drilling is temporarily suspended. This is done to condition the drilling fluid and well bore before drilling proceeds.

COMPLETE A WELL - Finish the work, on a well and bring it to a productive state.

CORE - This term is used as it relates to the Molikpaq. The core of the Molikpaq is the hollow centre of the unit which is filled with sand in order to provide sliding resistance against ice forces.

CUBIC METRE - This replaces the previous standard unit of measurement known as a barrel, which was equivalent to 35 Imperial gallons or 42 U.S. gallons. The cubic metre equals approximately 6.2897 barrels.

DEVELOPMENT WELL - Well drilled for oil and gas within a proven field or area for the purpose of completing the desired pattern of production.

DISCOVERY WELL - Exploratory well which discovers a new oil/gas field.

DOWN TIME - When a rig operations are temporarily suspended because of repairs or maintenance.

DRILL PIPE - Steel pipe, in approximately 9 metre lengths, screwed together to form continuous pipe extending from the drilling rig to the drilling bit at the bottom of the hole. Rotation of the drill pipe and bit causes the bit to bore through the rock.

DRILL STEM TEST (DST) - Conventional method of testing a formation to determine its potential productivity before installing production casing in a well. A testing tool is attached to the bottom of the drill pipe and placed opposite the formation to be tested which has been isolated by placing packers above and below the formation. Fluids in the formation are allowed to flow up through the drill pipe, by establishing an open connection between the formation and the surface.

DRILL STRING - String of individual joints of pipe that extends from the bit to the kelly and carries the mud down to, and rotates the bit.

DRILLING FLUIDS - While a mixture of clay and water is the commonest drilling fluid, wells can also be drilled with air, natural gas, oil or plain water as the drilling fluid.

DRY HOLE - Generally refers to any well that does not product oil or gas in commercial quantities.

ENVIRONMENTAL RISK ZONE - This term refers to the depth in the well which oil is expected to be found. Oil is accepted as the main environmental pollutant.

ENVIRONMENTAL RISK OPERATIONS - This terms defines any operation, either drilling, testing or evaluation which occurs below the environmental risk zone prior to abandonment of the well.

GAS PLAY - A gas play in this context consists of an exploration in which the primary reason for drilling the well is to find gas.

RISK ZONE - This terms refers to the depth in the well below which hydrocarbons, either gas or oil, can be found. This depth is determined by a review of seismic and nearby well information.

APPENDIX D

Glossary of Acronyms

AWPPA	Arctic Waters Pollution Prevention Act
ADW	Authority to Drill a Well
BOP	Blow Out Preventer
CPA	Canadian Petroleum Association
CCG	Canadian Coast Guard
CPRA	Canada Petroleum Resources Act
CARC	Canadian Arctic Resources Committee
CASPPR	Canadian Arctic Shipping Pollution Prevention Regulations
COGLA	Canadian Oil and Gas Lands Administration
DOE	Department of Environment
DFO	Department of Fisheries and Oceans
DIAND	Department of Indian Affairs and Northern Development
DPAA	Drilling Program Approval Application
DPA	Drilling Program Approval
EIS	Environmental Impact Statement
EISC	Environmental Impact Screening Committee
EIRB	Environmental Impact Review Board
EMR	Energy Mines and Resources
ESRF	Environmental Studies Revolving Funds
FJMC	Fisheries Joint Management Committee
GNWT	Government of Northwest Territories
HTC	Hunters and Trappers Committee
IDC	Inuvialuit Development Corporation
IFA	Inuvialuit Final Agreement
IGC	Inuvialuit Game Council
IRC	Inuvialuit Regional Corporation
MOT	Ministry of Transport
MODU	Mobile Offshore Drilling Unit
NS	North Slope
OGPCA	Oil and Gas Production and Conservation Act
RERC	Regional Environmental Review Committee
WMAC	Wildlife Management Advisory Council
WMAC(NS)	Wildlife Management Advisory Council-North Slope

APPENDIX E

CURRICULUM VITAE OF BOARD MEMBERS

MR. JAMES LIVINGSTONE - CHAIRMAN

Mr. Livingstone was educated in Nova Scotia, graduating from Dalhousie University in 1973. After graduation, he went to work for **Canadian National Railways** in Halifax.

In 1976, Mr. Livingstone joined **Gulf Canada Limited** where he stayed for twelve years. Beginning in the distribution department, he became Branch and Terminal Manager in Gulf's Point Edward facility. In 1978, he switched to Purchasing and Inventory Control as a Supervisor.

Mr. Livingstone was transferred to Calgary in 1980 to become Senior Buyer for **Gulf Canada Products Co.** In 1981, he was made Coordinator of Purchasing Operations for **Gulf Canada Resources Ltd.** By 1983, Mr. Livingstone was promoted to Senior Specialist for Canadian Industrial Development.

In 1984, Mr. Livingstone moved to Inuvik, Northwest Territories, as Gulf Canada Resources Ltd.'s Manager of Community Affairs. Within two years he was promoted to Manager of Northern Affairs, eventually moving back to Calgary.

In November of 1988, Mr. Livingstone left Gulf Canada Resources Ltd. to become President of **Fedmet Tubulars**, a division of Federal Industries Ltd., in Calgary. He resides in that city with his wife and two daughters.

Mr. Livingstone was appointed as Chairman of the Environmental Impact Review Board on January 5, 1989. He was Chairman of the Review Panel that conducted the Public Review of the **Esso Chevron et al Isserk I-15 Drilling Program** in October, 1989.

MR. EWAN COTTERILL

Mr. Cotterill is currently a resident of the City of Yellowknife, and has enjoyed a long association with the north. He began his career in the north with the **Atmospheric Environment Service** in 1957, moving over to the **Department of Northern Affairs** in 1961.

Mr. Cotterill worked in the **Government of the Northwest Territories** from 1967 to 1975, as Regional Director of the Fort Smith Region, Secretary to the Executive Committee, and later as Assistant Commissioner.

In 1975, Mr. Cotterill was appointed Assistant Deputy Minister for the Northern Affairs Program in the federal **Department of Indian Affairs and Northern Development.** In 1981, Mr. Cotterill became Executive Chairman of the **Federal Environmental Assessment and Review Office.**

Moving to the private sector in 1982, Mr. Cotterill signed on with **Dome Petroleum** as Vice President, Northern Policy and Employee Relations. In 1984, he was named Chairman of the **Arctic Petroleum Operators Association.**

In 1984, Mr. Cotterill formed his own consulting firm. In the period 1984 to 1986, he served as the Chairman of the West Coast Offshore Oil and Gas Exploration Environmental Assessment Panel. This duty took him up and down the British Columbia coast.

Mr. Cotterill was appointed in 1986 as Chairman of the Environmental Impact Screening Committee created as a result of the Inuvialuit Final Agreement, a position he still holds. Later that year, he was also appointed to the Environmental Impact Review Board. Mr. Cotterill was a Member of the Review Panel for the Public Review of the **Esso Chevron et al Isserk I-15 Drilling Program.**

MR. MIKE STUTTER

Mr. Stutter was born in England in 1931, and emigrated to Canada in 1949. He worked as a labourer in logging and sawmill camps in Alberta for several years, making his way north to the Yukon Territory in 1954.

From 1954 to 1961, Mr. Stutter worked for the **Yukon Consolidated Gold Corporation** as a surveyor.

Along with a partner, Mr. Stutter ran a river barging operation between Dawson City and Old Crow for twelve years. Since 1972 he has owned and operated a placer gold mining company in the Dawson City area.

Mr. Stutter was a Member of the **Yukon Legislative Assembly** from 1968 to 1972. He was a member of the **Yukon Territory Water Board** from 1974 to 1979. From 1980 to 1984, Mr. Stutter sat on the **Beaufort Environmental Assessment Review Panel** (BEARP) evaluating applications by Dome, Esso and Gulf to explore for hydrocarbons in the Beaufort Sea.

Returning to the **Yukon Territory Water Board** in 1985, he became Vice Chairman.

Mr. Stutter has been a Member of the Environmental Impact Review Board since 1986, designated by the Government of Yukon. He calls Whitehorse home, but spends the summers in Dawson City.

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MR. ALBERT ELIAS

Mr. Elias was born in Aklavik in 1942. He has lived in the communities of Tuktoyaktuk, Sachs Harbour, Holman and Inuvik. As a child, he was brought up hunting, fishing and trapping. He attended school in both Inuvik and Yellowknife.

Mr. Elias was a Director of the Committee for Original People's Entitlement (C.O.P.E.), the organization that negotiated the Inuvialuit Final Agreement. Besides being a Member of the Environmental Impact Review Board, Mr. Elias is also a Member of the Inuvialuit Land Administration Commission and the Wildlife Management Advisory Council (NWT).

Mr. Elias was the Manager-coordinator for Guided Arctic Expeditions from March 1989 to May 1990. Recently, he and his family have returned to live in Holman.

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MR. CALVIN POKIAK

Mr. Pokiak lives in the Hamlet of Tuktoyaktuk with his wife and two sons. He is a former Mayor of Tuktoyaktuk, and was a Director of the Committee for the Original People's Entitlement (C.O.P.E.), the organization that negotiated the Inuvialuit Final Agreement.

Mr. Pokiak is currently employed by **Arctic Transportation Ltd.** as a Liaison Officer for Northern Affairs. He has been a Member of the Environmental Impact Review Board for two years, appointed by the Inuvialuit Game Council. Mr. Pokiak was a member of the Review Panel for the **Esso Chevron et al Isserk I-15 Public Review.**

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MR. GARY WAGNER - SECRETARY

Mr. Wagner has been employed by the Joint Secretariat as the Resource Person for Environment since 1987, one of the duties of which is to act as Secretary to the Environmental Impact Review Board.

Mr. Wagner graduated from university in 1980 with an honours B.A. in Geography. In 1981, he moved to Calgary to work for **Norcen Energy Resources Limited** as an exploration technologist in the oil and natural gas industry. In 1984, he qualified as a Certified Engineering Technologist (CET) with the Alberta Society of Engineering Technologists (ASET). Mr. Wagner left Norcen in 1985 to work for a smaller independent firm.

When world oil prices took a tumble a year later, Mr. Wagner was laid off but promptly accepted an offer from the **Canadian Armed Forces** to fill the position of Area Cadet Administration Officer (Land) at CFB Edmonton. This term position related to Mr. Wagner's involvement as a Reserve Force Officer with the Royal Canadian Army Cadets in Calgary.

Mr. Wagner returned to Calgary six months later to get married. He might still be serving at CFB Edmonton if in 1987 he hadn't been offered the position with the Joint Secretariat that he holds today. Mr. Wagner maintains his involvement with the military as Commanding Officer of the Royal Canadian Army Cadet Corps in Inuvik.

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